JVC

SERVICE MANUAL

VIDEO CASSETTE RECORDER

HR-D770E/EG

SPECIFICATIONS *(The specifications shown pertain specifically to the model HR-D770E [illegible]*

GENERAL

Power requirement : AC 220 – 240 V∼, 50/60 Hz
Power consumption : 24 W
Temperature : 5°C to 40°C (Operating)
: –20°C to 60°C (Storage)
Operating position : Horizontal only
Dimensions (WxHxD) : 435 x 95 x 333 mm
Weight : 5.1 kg
Format : VHS PAL standard
Tape width : 12.65 mm
Tape speed : 23.39 mm/sec
Maximum recording time : 240 min. with E-240 video cassette

VIDEO

Signal system : PAL colour and CCIR monochrome signals, 625 lines/50 fields
Recording system : Rotary two-head helical scan system
Input : 0.5 to 2.0 Vp-p, 75 ohms, unbalanced
Output : 1.0 Vp-p, 75 ohms, unbalanced
Signal-to-noise ratio : 43 dB (Rohde & Schwarz noise meter)
Horizontal resolution : 250 lines

AUDIO

Recording system : Longitudinal track
Input : –3.8 dBs, (CENELEC standard) more than 50 k-ohms, unbalanced
Output : –3.8 dBs, (CENELEC standard) less than 1 k-ohm, unbalanced (100 k-ohms, load)
Frequency range : 70 Hz to 10,000 Hz

TUNER

Tuning system : Frequency synthesized tuner
TV channel storage capacity : 48 positions (+ AUX position)
Channel coverage : VHF 47 — 111 MHz
111 — 300 MHz
302 — 470 MHz
(Hyper band for PAL)
UHF 470 — 862 MHz
Aerial output : UHF channel 36
(adjustable 32 — 40)

TIMER

Clock reference : [illegible]
Programme capacity : [illegible]
Memory backup time : [illegible]

ACCESSORIES

Provided accessories : [illegible]

Optional accessories (EG) : [illegible]

Optional accessories (E) : [illegible]

Design and specification [illegible]

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NOTE: For a technical description, please refer to Technical Guide VTG82063 General.

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The difference point between **HR-D770E** and **HR-D770EG** is as follows.
EG: VPS decoder built-in,
equipped adapter terminal.

Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▨) parts are critical for safety.
   Replace only with specified part numbers.
   Note: **Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.**

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

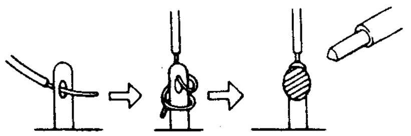

Fig. 1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10—15 kg of force in any direction will not loosen it.

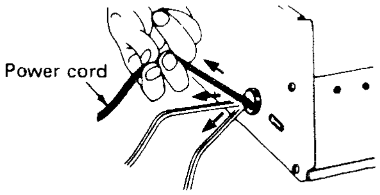

Fig. 2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.
    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

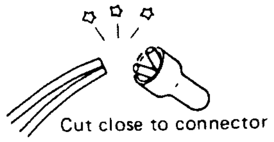

Fig. 3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

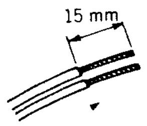

Fig. 4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

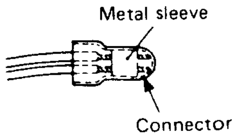

Fig. 5

(4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

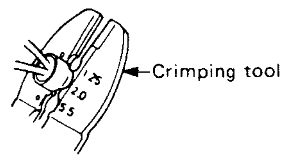

Fig. 6

(5) Check the four points noted in Fig. 7.

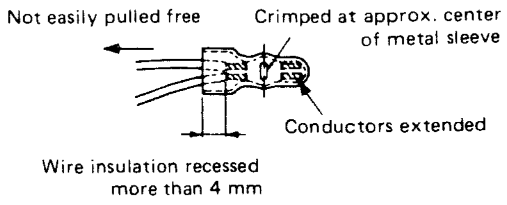
Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. **Clearance distance**
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

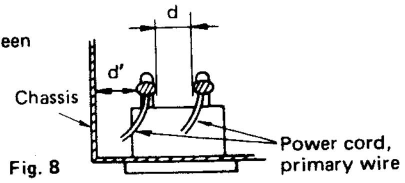

Fig. 8

4. **Leakage current test**
   Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
   Measuring Method: (Power ON)
   Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

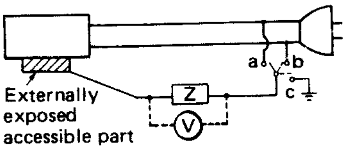

Fig. 9

5. **Grounding (Class I model only)**
   Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
   Measuring Method:
   Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

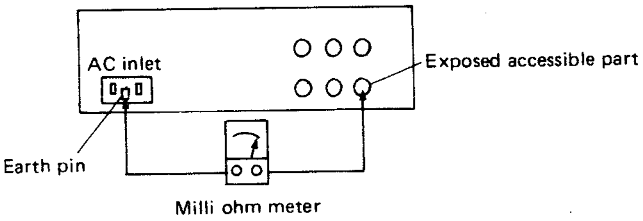

Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 minute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	–	AC 900 V 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ /500 V DC	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	0.15 μF 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

Safety Precautions

The rating plate and the safety caution are on the rear of the unit.

WARNING — DANGEROUS VOLTAGE INSIDE
WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

IMPORTANT

Connection to the mains supply plug in the United Kingdom.

Do not make any connection to the Larger Terminal coded E or Green. The wires in the mains lead are coloured in accordance with the following code:

Blue to N (Neutral) or Black
Brown to L (Live) or Red

If these colours do not correspond with the terminal identifications of your plug, connect as follows:
Blue wire to terminal coded N (Neutral) or coloured Black.
Brown wire to terminal coded L (Live) or coloured Red.
If in doubt — consult a competent electrician.

CAUTION

- When you are not using the recorder for a long period of time, it is recommended that you disconnect the power cord from the AC outlet.
- Dangerous voltage inside. Refer internal servicing to qualified service personnel. To prevent electric shock or fire hazard, remove the power cord from the AC outlet prior to connecting or disconnecting any signal lead or aerial.

Omkopplaren OPERATE på denna apparat är sekundärt kopplad och skiljer inte apparaten från nätet i läge OPERATE OFF.

The OPERATE button does not completely shut off mains power from the unit, but switches operating current on and off.

BEMAERK: I stilling OFF er apparatet stadig forbundet med lysnettet Hvis det ønskes fuldstændig afbrudt skai netledningen trækkes ud.

This unit is produced to comply with Directives 76/889/EEC, 82/499/EEC, 87/308/EEC and Standard IEC Publ. 65.

IMPORTANT:
Please read the "Precautions" section of this instruction manual before installing or operating the recorder.

WARNING

There are two different types of SECAM colour systems: SECAM-L, used in FRANCE (also called SECAM-West), and SECAM-B, used in Eastern European countries (also called SECAM-East).

1. This recorder can also receive SECAM-B colour television signals for recording and playback.
2. Recordings made of SECAM-B television signals produce monochrome pictures if played back on a video recorder of SECAM-L standard, or do not produce normal colour pictures if played back on a PAL video recorder with SECAM-B system incorporated (even if the TV set is SECAM-compatible).
3. SECAM-L prerecorded cassettes or recordings made with a SECAM-L video recorder produce monochrome pictures when played back with this recorder.
4. This recorder cannot be used for the SECAM-L standard. Use a SECAM-L recorder to record SECAM-L signals.

IMPORTANT: It may be unlawful to record or play back copyrighted material without the consent of the copyright owner.

PAL

- Only cassettes marked "VHS" can be used with this video recorder.
- HQ VHS is compatible with existing VHS equipment.

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How To Use This Instruction Manual

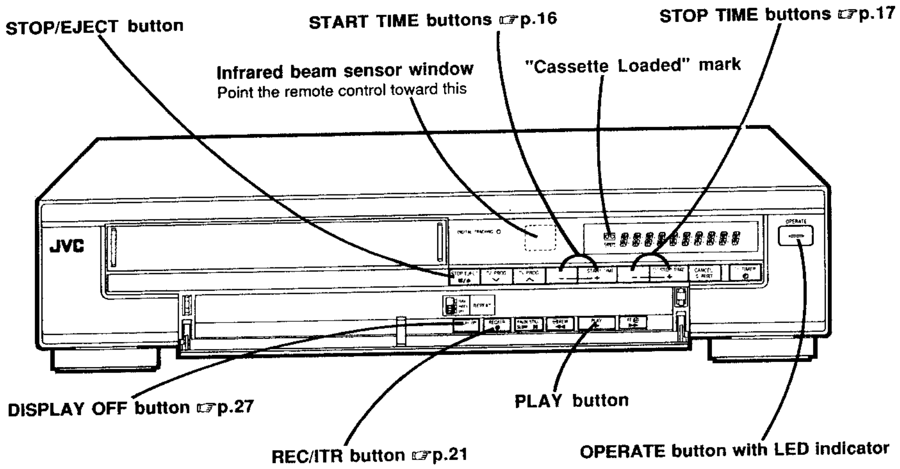
This instruction manual has been designed with both new and experienced users in mind. The first half offers detailed, step-by-step instructions for setting up your video recorder, and on using its basic functions. The second half provides instructions on the many other functions available on your video recorder. So just by following the instructions in the "Getting Started" and "Basic Operation" sections of this manual, you can master all of your recorder's basic functions, including timer-recording. Once you're sufficiently familiar with basic operation, or if you're already an experienced video user, you can move on to the more advanced functions introduced on the following pages. Related features have all been clustered together for easy reference, and their categories (playback, recording, timer, etc.) are easily recognisable by the symbol appearing in the page header. If you ever need to refer to another page for instructions or information, you will be told so by a ☞ mark pointing to the page number.

Remember, you must use your video recorder correctly to fully enjoy it. Please use this manual effectively. It's the surest and quickest way to unlock the full potential of your new JVC video recorder.

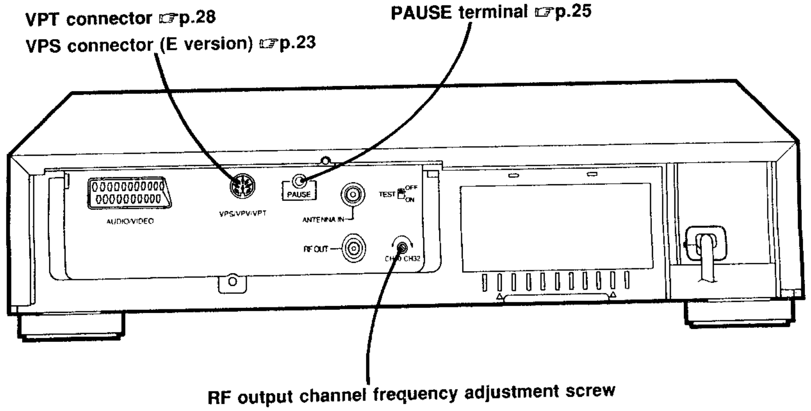
This instruction manual covers two model versions: "EG" and "E". Be sure to check which model you have purchased.
EG: VPS decoder built-in.
E: VPS decoder not built in. You must connect an optional adapter to take advantage of VPS service. ☞p.23

Controls, Indicators, And Connectors

Front Panel

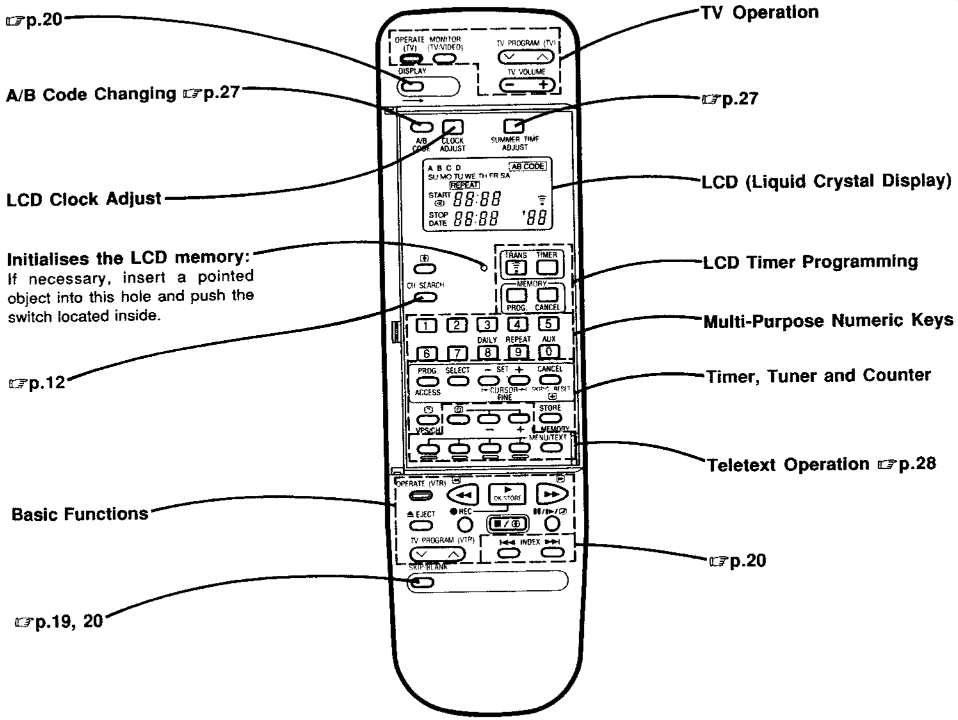

STOP/EJECT button
START TIME buttons ☞p.16
STOP TIME buttons ☞p.17
Infrared beam sensor window
Point the remote control toward this
"Cassette Loaded" mark
JVC
DISPLAY OFF button ☞p.27
PLAY button
REC/ITR button ☞p.21
OPERATE button with LED indicator

Back Panel


VPT connector ☞p.28
VPS connector (E version) ☞p.23
PAUSE terminal ☞p.25
AUDIO/VIDEO
VPS/VPV/VPT
PAUSE
ANTENNA IN
RF OUT
TEST OFF ON
CH 30 CH32
RF output channel frequency adjustment screw

Wireless Remote Control

Open the remote's cover to access the buttons under the cover.


☞p.20
A/B Code Changing ☞p.27
LCD Clock Adjust
Initialises the LCD memory:
If necessary, insert a pointed object into this hole and push the switch located inside.
☞p.12
Basic Functions
☞p.19, 20
TV Operation
☞p.27
LCD (Liquid Crystal Display)
LCD Timer Programming
Multi-Purpose Numeric Keys
Timer, Tuner and Counter
Teletext Operation ☞p.28
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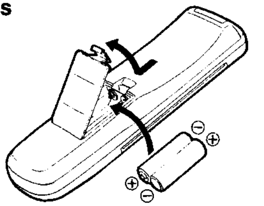
OPERATE (TV)
MONITOR (TV/VIDEO)
TV PROGRAM (TV)
DISPLAY
TV VOLUME
A/B CODE
CLOCK ADJUST
SUMMER TIME ADJUST
START
STOP DATE
CH SEARCH
TRANS
TIMER
MEMORY
PROG.
CANCEL
1 2 3 4 5
DAILY REPEAT AUX
6 7 8 9 0
PROG ACCESS
SELECT
SET
CANCEL
CURSOR
FINE
STORE
MENU/TEXT
OPERATE (VTR)
EJECT
REC
TV PROGRAM (VTP)
INDEX
SKIP BLANK

Installing Batteries

1. Open the battery compartment cover.
2. Insert 2 "R6"-size batteries (provided) in the correct directions.
3. Replace the cover.



NOTE:
Some buttons have additional labels (mostly pictograms) for teletext operations. You will find instructions for these in the Instruction Manual of the teletext adapter.

How To Use

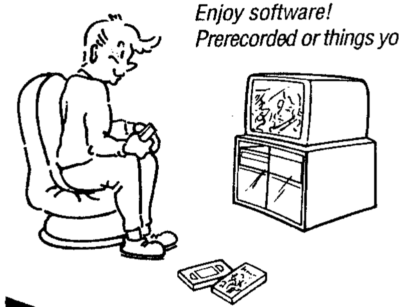
The remote control can operate most of your video recorder's functions, as well as basic functions of designated JVC TV sets.

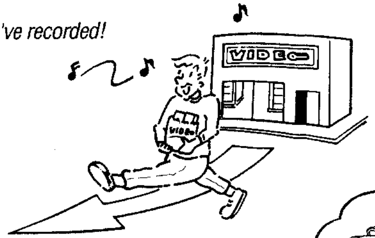
- Point the remote control toward the sensor window.
- The maximum operating distance of the remote control is about 8 m.

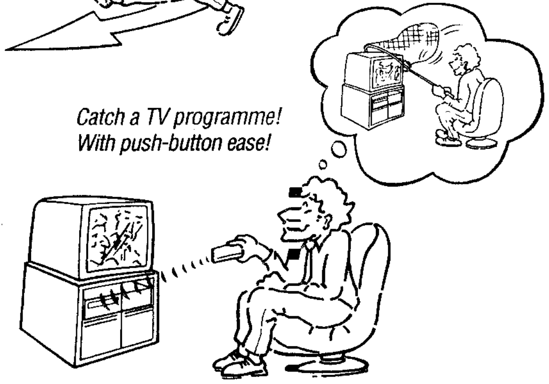
Getting To Know Your Video Recorder

The 3 Basic Ways Of Using Your Video Recorder

Enjoy software!
Prerecorded or things you've recorded!







Catch a TV programme!
With push-button ease!

Playback

With the video recorder properly connected to your TV set, viewing videos is as easy as pushing the Play button. Prerecorded VHS software is available just about anywhere, and your video recorder will let you enjoy it all. And, of course, you can enjoy those programmes you've recorded yourself too.

Record TV programmes while you're away.
Watch TV programmes when you want.

Recording

Just press the Record and Play buttons together on your remote control. The recorder will record whatever it is that you're watching. In other words, you can instantly "catch" a TV programme in progress to see it again later, show it to someone else, or keep it as part of your video library. Recording is possible for 4 hours on a single E-240 cassette.

THE LATE SHOW

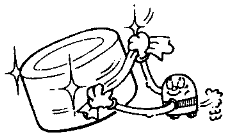
Timer-Recording

By using the built-in timer, you can set your video recorder to record TV programmes for you while you're asleep, while you're away, or while you're doing something else. Then you can watch those programmes later, whenever it's convenient, whenever you want. This is what's called "timeshifting", and now you can do it the JVC way.

Some Other Functions On Your Video Recorder

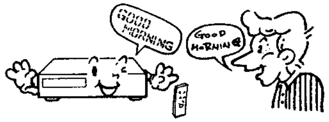
Express Timer

Makes timer programming as easy as pressing three buttons on the recorder. Start time, stop time, engage — that's all!



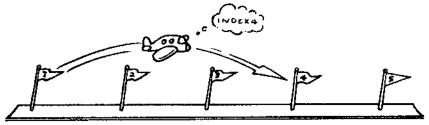
Auto Head Cleaner

A built-in head cleaner automatically cleans the video heads and head drum whenever a tape is loaded or unloaded to reduce head clogging.



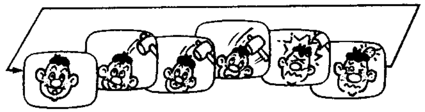
"Message" Display Panel

The video recorder "talks" to you from its message display panel. It's easy to understand what the recorder is doing at any time — a friendlier way to interact with your video deck.



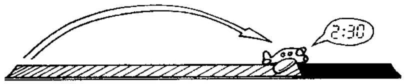
Index Search

Zooms to the index code number you specify. Easy location of index-coded programmes at the touch of a button. Index codes are automatically marked by the recorder at the beginning of each recording.



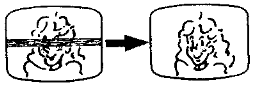
Repeat Playback

Automatic repeated playback of the whole tape or a programme segment. Lets you enjoy those favourite scenes and favourite songs again and again.



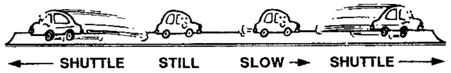
Blank Search

Lets you find the beginning of a non-recorded section automatically when you want to record on a partially-recorded tape. No more blind searching. Automatically displays the tape's remaining time too.



Digital Tracking

Automatically controls video tracking to maintain the best video picture, even with tapes with excessive tracking variations. A must for rental software viewing.



Still/Slow/Shuttle Search

Lets you stop the action or slow it down for a closer look at fast-moving sequences. Search for a specific scene at high speed in either direction.

Making The Right Connections

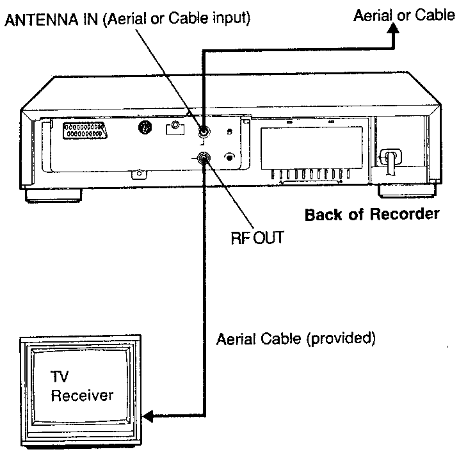
It's essential that your video recorder be properly connected. Follow these steps carefully. THESE STEPS MUST BE COMPLETED BEFORE ANY VIDEO OPERATION CAN BE PERFORMED.

A RECORDER-TO-TV CONNECTION

RF CONNECTION

For TV sets without AV input terminals:

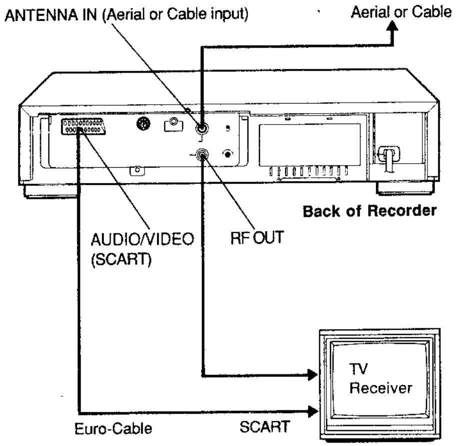
1. Connect the TV aerial cable to the recorder.
2. Connect the recorder to the TV's aerial terminal.



AV CONNECTION

For TV sets with AV input terminals:

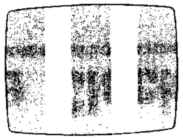
1. Connect the aerial, recorder and TV as per "RF CONNECTION".
2. Connect the recorder to the TV's 21-pin SCART connector.



B ADJUST VIDEO CHANNEL (UHF 36)

With an RF connection, the video recorder sends picture and sound signals through the connecting cable to your TV on UHF channel 36.

TEST SIGNAL



1. Turn on the recorder.
2. Set the TEST switch to ON.
3. Set your TV to the video channel. Tune to the real channel 36, to bring the two vertical white bars on the screen most clearly.
   - Your TV should be set to the channel designated for use with a video recoder or to a spare channel if there is not a specified channel.

NOTE:

If some interference noise is seen on the screen because of broadcasts on neighbouring channels, it is necessary to shift the video channel from UHF channel 36. This is possible for UHF channels 32 through 40. Consult your JVC dealer for making this adjustment.

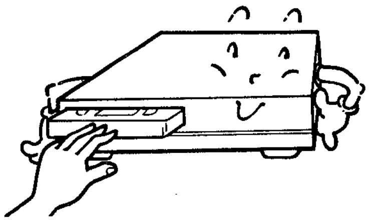
IMPORTANT:

To operate the recorder with your TV using an RF connection, it is always necessary to set your TV's channel to VIDEO CHANNEL. With an AV connection, set the TV to the VIDEO (or AV) mode.

Handling Video Cassettes

A LOADING A CASSETTE

1. Insert a cassette with its label side facing you.
   - If the cassette is not loaded firmly it will be ejected.



B UNLOADING A CASSETTE

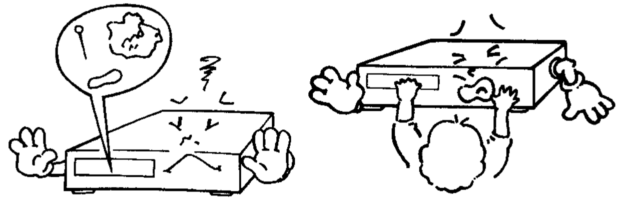
1. Press EJECT.
   - If the cassette will not eject, check to see if "TIMER" is displayed on the message display panel. If it is, press the TIMER button to turn it off.

NOTES:

- Be sure to insert the cassette firmly into the slot; otherwise it will be automatically ejected.
- The automatic loading mechanism will operate only when the cassette is inserted correctly.

WARNING

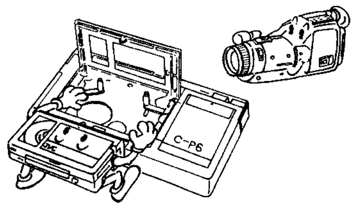
- Do not insert fingers or foreign objects into the cassette loading slot since this could lead to injury or damage to the mechanism. Be especially careful with children.
- Do not try to pull out a cassette once automatic loading has started.



Usable Cassettes

Full-Size VHS
E-30 (SE-30**)
E-60 (SE-60**)
E-90
E-120
E-180 (SE-180**)
E-240

Compact VHS*
EC-30 (SE-C30**)
EC-45 (SE-C45**)

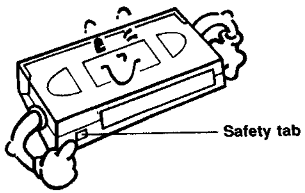


* Compact VHS camcorder recordings (PAL) can be played on this video recorder. Simply place the recorded cassette into a C-P6 Cassette Adapter and it can be used just like any full-sized VHS cassette.

**This video recorder can record on regular VHS and Super VHS cassettes. However, it will record and play back regular VHS signals only. It is not possible to play back a recorded Super VHS tape.

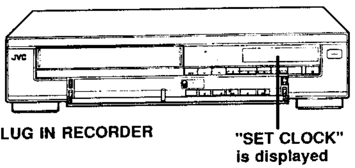
Accidental Erasure Prevention

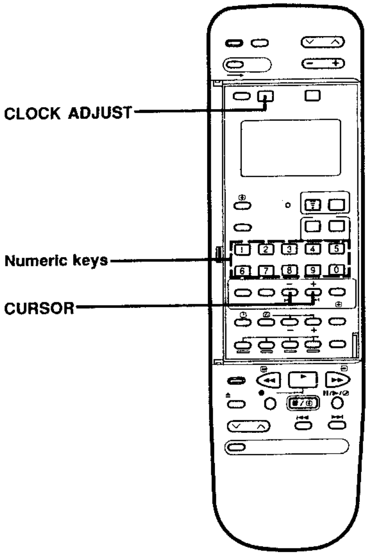
To prevent accidental recording on a recorded cassette, remove its safety tab. To record on it later, cover the hole with adhesive tape.



Setting The Clock

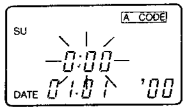
Since your video recorder bases all of its timer recording start and stop "decisions" on the time kept by its built-in clock, accurate setting of this clock is crucial for proper timer-recording results. Follow these instructions to set the remote control's LCD clock and transfer its contents to the recorder's clock.


PLUG IN RECORDER
"SET CLOCK" is displayed


CLOCK ADJUST
Numeric keys
CURSOR

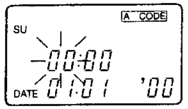
A LOAD BATTERIES (☞p.5)

1 Check the LCD.
- The time display section (0:00) will be blinking.


A CODE
SU
0:00
DATE 01·01 '00

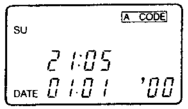
B START CLOCK SETTING

2 Press CLOCK ADJUST.
- Blinking digits will prompt you to items that can be set.


A CODE
SU
0:00
DATE 01·01 '00

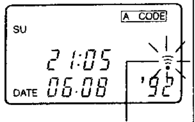
C INPUT THE TIME

3 Press the appropriate numeric keys.
- Example: For 21:05, press 2 1 0 5. Always enter "0" before single-digit entries.


A CODE
SU
21:05
DATE 01·01 '00

D INPUT THE DAY/MONTH/YEAR

4 Press the appropriate numeric keys.
- Example: For 6th August, 1992, press 0 6 0 8 9 2. Always enter "0" before single-digit entries.
- After setting the year, the transfer-ready mark will appear and blink.


A CODE
SU
21:05
DATE 06·08 '92

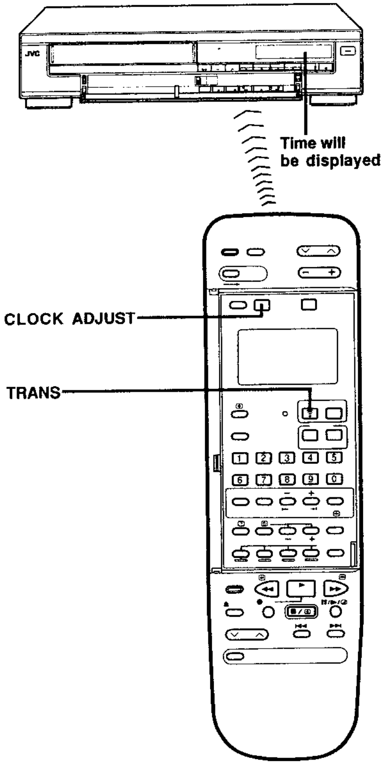
Transfer-ready mark

TO MAKE CORRECTIONS

Press either CURSOR button so that the item you want to change blinks. Re-input that item. Continue to step E.

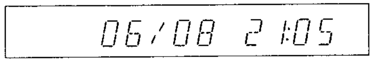
NOTES:

- If the day and month data is invalid (such as 31st April), the month digits are cleared automatically and the day digits will blink. Input again.
- If the year digits are automatically cleared in step D, it is possible that you have input 29th February for a non-leap year. Input again.


Time will be displayed
CLOCK ADJUST
TRANS

E TRANSFER AND START THE CLOCK

5 Press TRANS.
- The day of the week will automatically appear.
- The remote control's clock will start. At the same time, the set data will be transferred to the recorder.



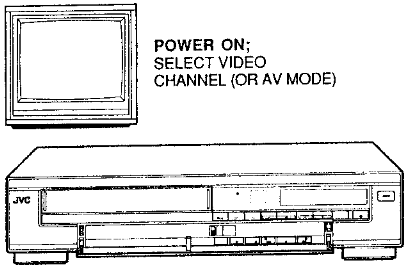
AFTER A POWER OUTAGE

Since your video recorder has a 60-minute backup memory, it will not be affected by short power outages. If mains power is unavailable for over one hour, however, the recorder's display will revert to "SET CLOCK". In such a case, simply transfer the remote control's time to the recorder.
- Press CLOCK ADJUST.
- Press TRANS.

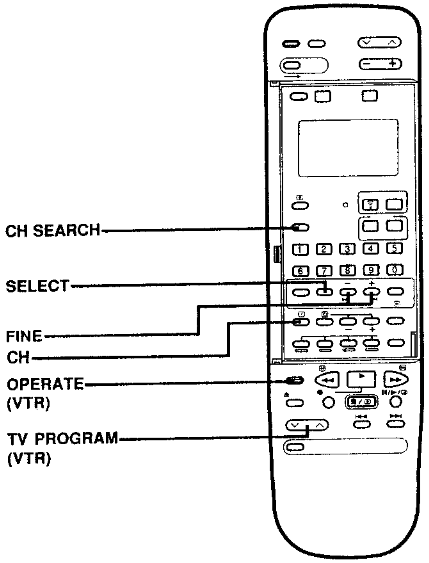
For quick "summer time" (Daylight Saving Time) adjustment, ☞p.27.

Setting The Tuner

The procedure introduced here lets you assign receivable channels in your area to channel positions on your video recorder's tuner. Once stored, these can be accessed with the TV PROGRAM (VTR) ∨/∧ button. During channel scanning, empty tuner channel positions will be skipped so you won't have to go through any "blank" channels to get to the one you want.



POWER ON;
SELECT VIDEO
CHANNEL (OR AV MODE)



A ENGAGE THE CHANNEL SET MODE

1. Press OPERATE (VTR).

PR 1

2. Press CH.

B SEARCH FOR RECEIVABLE CHANNELS

3. Press CH SEARCH.
   - Automatic scanning will start at the lowest channel number, and stop when a broadcast is detected.

REAL Ch26

↓

SKIPPED

- Regular channels (Ch) are scanned first, then cable channels (CC).

C FINE-TUNE THE CHANNEL

- Check the picture on the TV screen, and fine-tune it if necessary. When the picture is clear, proceed to Step D.

4. Press SELECT.
5. Press FINE (+ or –) so that the "–" sign appears at the centre.

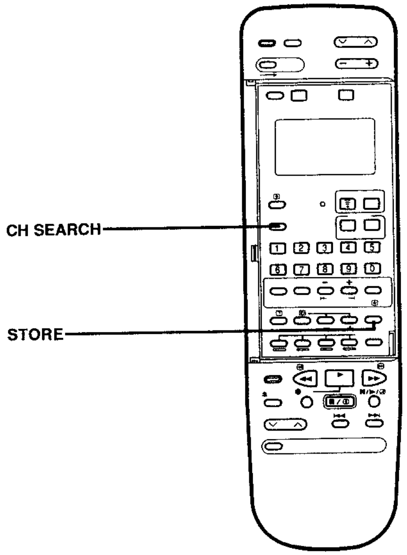
FINE– Ch26

6. Press SELECT.

D SELECT A TUNER POSITION

7. Press TV PROGRAM (VTR) to select the tuner channel position where you wish to store that broadcast.

SKIPPED



E STORE THE CHANNEL

8. Press STORE.

STORED 1

↓

REAL Ch26

- This message indicates that UHF channel 26 has been stored into the tuner's channel position 1.

F CONTINUE

9. Repeat steps B through E for other receivable channels.

TO CHANGE PRESET CHANNELS

- If you have already preset some channels, do not use the automatic Channel Search function to change or add channels. ☞ p.26.

ENGLISH

ATTENTION

The "real channel" numbers displayed on the recorder may not correspond to channel designations in your area.

ITALY

Display	Ch	13	14	15	16	17	18	19	20	11	12
Corresponding channel		A	B	C	D	E	F	G	H	H1	H2

BELGIUM

Display	CC	01	02......10	11......20
Corresponding channels		80(M1)	81(M2)...89(M10)	90(U1)...99(U10)

SWITZERLAND

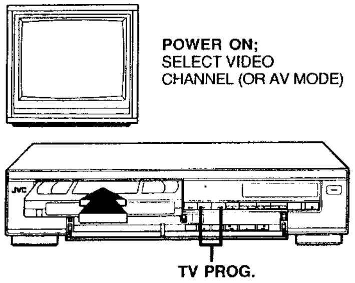
Display	CC	75	76	77
Corresponding channel		X	Y	Z

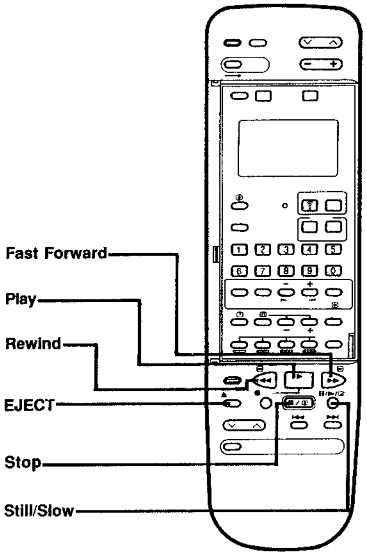
NOTES:

- If you don't want to store the broadcast detected in Step B, simply press CH SEARCH to continue automatic scanning. Search will stop as soon as another broadcast is detected.
- Be sure to proceed to the next step within 60 seconds, otherwise Channel Search will be cancelled automatically. If this happens and you wish to continue channel setting, press CH SEARCH again. Channel scanning will resume, beginning with the next receivable channel.

► Playback

The easiest, most basic operation possible with your video recorder is tape playback. Already-recorded signals on a video tape are read by your video recorder and displayed on your TV just like a TV programme.





A LOAD A CASSETTE

1 Insert a cassette.
- The recorder power will come on automatically.
- If the safety tab on the cassette is removed, playback will start automatically.

B TO START PLAYBACK

2 Press ► (Play).

C TO STOP PLAYBACK

3 Press ■ (Stop).

D TO REWIND OR FAST-FORWARD

4 Press ◄◄ (Rewind) to rewind the tape.
5 Press ►► (Fast Forward) to fast-forward the tape.
- Press ■ (Stop) to stop rewind or fast-forward.

E TO EJECT THE TAPE

6 Press EJECT.

High-Speed Forward And Reverse Search

During Playback:

1. Press ►► (Fast Forward) for high-speed forward search.
2. Press ◄◄ (Rewind) for high-speed reverse search.
3. Press ► (Play) to resume normal playback.
   - For short searches, keep ►► (Fast Forward) or ◄◄ (Rewind) pressed for more than 2 seconds. When released, normal playback will continue.

Still Playback And Frame Advance

During Playback:

1. Press II/I► (Still/Slow) to view a still picture.
2. Press again to advance the picture frame by frame.
3. Press ► (Play) to resume normal playback.

Slow Motion

During Playback:

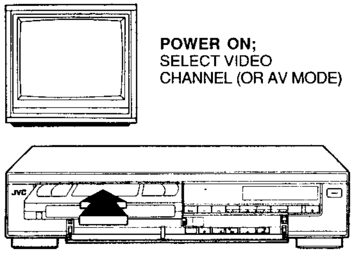
1. Press II/I► (Still/Slow) for 2 seconds.
2. Press again to stop the picture.
3. Press ► (Play) to resume normal playback.

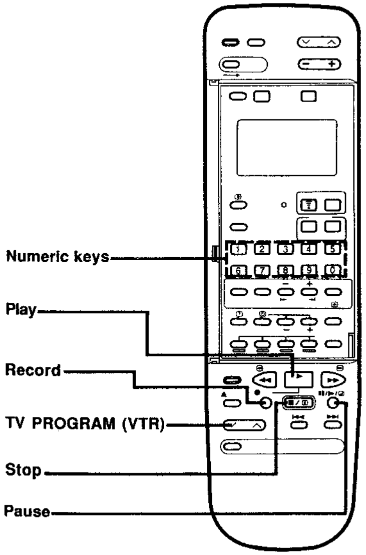
NOTES:

- The recorder automatically stops when still continues for more than 5 minutes.
- If the still picture is unstable (vertical jitter) use the recorder's TV PROG. (in lieu of V. LOCK) buttons to correct the picture.
- During search playback, some noise bars will appear.
- If noise bars appear during playback, correct using manual tracking. ☞ p.19.
- There is no audio during search, still, frame-by-frame, or slow motion playback.
- The recorder automatically rewinds when the end of the tape is reached.

● Recording

TV signals being received by the recorder's built-in tuner can be recorded onto a video tape. This is realtime video recording.





A LOAD A CASSETTE

1 Insert a cassette with the safety tab in place.
- The recorder power will come on automatically.

B CHOOSE A PROGRAMME

2 Press TV PROGRAM (VTR) or the numeric keys to select the channel you wish to record.

C TO START RECORDING

3 Press ● REC (Record) and ► (Play) simultaneously.

D TO PAUSE RECORDING

4 Press II/I► (Pause).
5 Press ► (Play) to resume recording.

E TO STOP RECORDING

6 Press ■ (Stop).

To Watch Another Programme While Recording

During Recording:

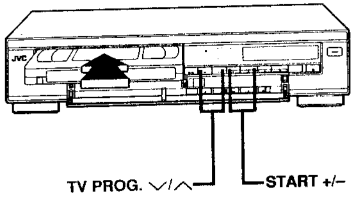
1. Use the channel controls on the TV to select the other channel you wish to view.
   - The programme selected with the TV channel controls will appear on the TV screen while the one selected with the video recorder's channel controls will be recorded on the tape.

NOTES:

- To start recording with the recorder's REC/ITR button, press it once on its own. Pressing REC/ITR more than once activates the Off-Timer. ☞ p.21.
- After pause, when recording is resumed, a few frames recorded before the pause may be overlapped by the new recording. This is meant to reduce picture distortion and is not a malfunction.
- The recorder automatically stops when record-pause continues for more than 5 minutes.
- If the Record button does not work, check to see if the cassette's safety tab has been removed.
- When a VPS programme is being broadcast on the selected channel, "VPS" appears on the display panel. ☞ p.23 for information on VPS.
- The channel cannot be changed while recording is in progress. To change the channel, engage the record-pause mode, then change the channel.
- The recorder automatically rewinds when the end of the tape is reached during recording.

Timer-Recording

The "Express Timer" introduced here is the quickest method of programming your video recorder's timer. TV shows to be broadcast within 24 hours can be programmed for automatic recording simply by pressing three buttons (conveniently numbered) on your recorder's control panel. For timer programming using your remote control, ☞ p.22. TIMER PROGRAMMING IS NOT POSSIBLE UNLESS THE CLOCK HAS BEEN SET.



Express Timer Programming

A LOAD A CASSETTE

1 Insert a cassette with the safety tab in place.
- The recorder power will come on automatically.
- The recorder's display panel will show the channel being received.

VPS PR.12

2 If you want to record another channel, press TV PROG. ∨/∧ to change the channel.

B SET THE START TIME

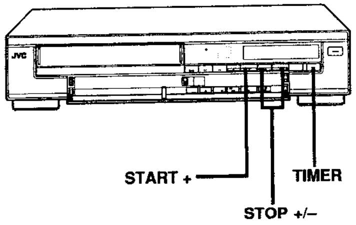
3 Press START +.
- This engages the programme set mode, and the current time will appear.

12:33 _ ⌟

4 Press START +/– to set the start time.
- START + advances the time and START – reverses the time.
- Press briefly to change by 1 minute. Hold the button down to change by 30-minute increments.

16:00 _ ⌟

- After the start time is set, "TODAY" or "TOMORROW" will be displayed for 3 seconds.



C SET THE STOP TIME

5 Press STOP +.
- The start time will be transferred over to the stop time position automatically.

16:00 _ ⌟ 16:00

6 Press STOP +/– to set the stop time.
- STOP + advances the time and STOP – reverses the time.
- Press briefly to change by 1 minute. Hold the button down to change by 30-minute increments.

16:00 _ ⌟ 17:45

D SET TO TIMER MODE

7 Press TIMER.
- The recorder will enter the timer mode and power will go off.

TIMER 12:35

TO CHANGE CHANNELS

If needed, you can change the channel at any time during steps B and C. This changes the channel being received and the channel to be recorded.

VPS PR.26

ATTENTION:

- If you have programmed the timer's PROGRAM 8 (via the on-screen programming facility that is available when an optional VPT adapter is connected, ☞ p. 28), using the Express Timer will clear that data from PROGRAM 8 and replace it with the Express Timer data.

TO DISENGAGE THE TIMER

For safety, your recorder disables all other functions while in the timer mode.
- To use your recorder, first disengage the timer mode by pressing TIMER again. Now all functions will be operable.
- To re-engage the timer, press TIMER.

TO CHECK PROGRAMMED SETTINGS

While in the timer mode, press START + to check the settings you have programmed into the Express Timer. Each time START + is pressed, the display will change: Start Time, Stop Time, Date, Channel, and "blank" again. DO NOT press START + while the timer mode is disengaged because this will clear the Express Timer's memory to make room for a new entry.

For other timer programming methods, ☞ p.22.
Any questions? ☞ p.24.

MODE Mode Displays — What They Mean

Message Display Panel

The operation mode is displayed on the recorder's display panel automatically. Displayed messages are designed to be self-explanatory. Here are some of the more common displays:

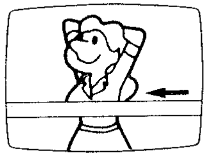
DISPLAY	MODE	DISPLAY	MODE
PLAY	Play	PAUSE (with channel number)	Record-Pause
STILL	Still	FWD SEARCH	Forward Search
FF	Fast-Forward	REV SEARCH	Reverse Search
REW	Rewind	FWD SLOW	Forward Slow
REC (with channel number)	Record	EJECT	Eject
TIMER REC	Timer-Recording	STOP	Stop

For a more comprehensive list, ☞ p.29.

On-Screen Display

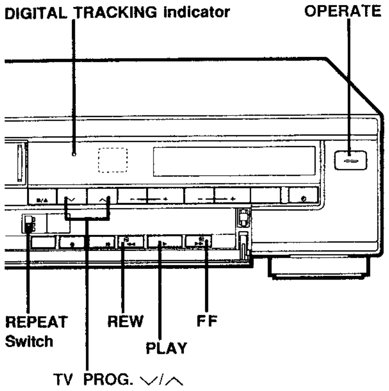
The record-pause mode is also displayed on the TV screen in the form of a white horizontal bar.

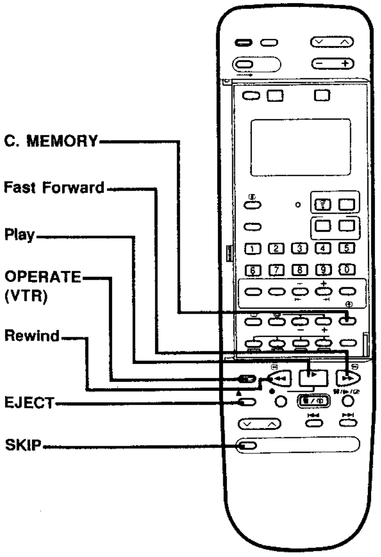
- The bar reduces in size to let you know how long the record-pause mode has continued.
- The record-pause mode is automatically released after about 5 minutes.



For Playback

Take advantage of special functions possible with the recorder's controls or the remote control.





NOTE:

When a new tape is inserted, the recorder enters the automatic tracking mode automatically.

Repeat Playback (Recorder)

Your video recorder can automatically play back the whole tape or an index-marked portion 5 times repeatedly.

1. Set the REPEAT switch to FULL or INDEX.
   - For Index Repeat playback, locate the index code at which you wish to start playback. (Index Search, ☞p.20.)
2. Press PLAY. Repeated playback will start. After repeating 5 times consecutively, playback will stop.
   - Be sure to reset the REPEAT switch to OFF before pressing the PLAY button again; otherwise repeat playback will resume.

Manual Tracking (Recorder)

Your video recorder is equipped with automatic tracking control; the DIGITAL TRACKING indicator lights or blinks when automatic tracking is on. During playback, tracking can be adjusted manually using the TV PROG. buttons.

1. Press TV PROG. (∨ and ∧) simultaneously for manual override.
   - The DIGITAL TRACKING indicator will go out.
2. Press TV PROG. (∨ or ∧) to adjust tracking.
3. Press TV PROG. (∨ and ∧) simultaneously to return to automatic tracking.

To adjust tracking during slow motion, simply press TV PROG. (∨ or ∧) to obtain the best picture.

Next Function Memory (Recorder and Remote Control)

For automatic start of playback after the tape is rewound:

1. Press ◀◀ (Rewind).
2. Press ▶ (Play) within 2 seconds.

For automatic power off after the tape is rewound:

1. Press ◀◀ (Rewind).
2. Press OPERATE (VTR) within 2 seconds.

For automatic eject after the tape is rewound: (Remote Control only)

1. Press ◀◀ (Rewind).
2. Press EJECT within 2 seconds.

For automatic timer standby after the tape is rewound:

1. Press ◀◀ (Rewind).
2. Press TIMER within 2 seconds.

- If you want the "next function" to automatically start when the counter reads "0:00:00" (instead of at the beginning of the tape), press C. MEMORY so that the "M" mark appears before pressing ◀◀ (Rewind).

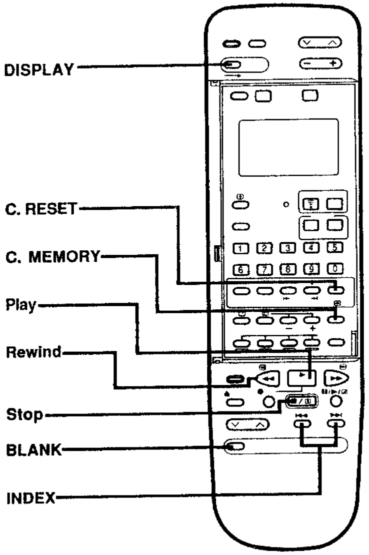
Skip Search (Remote Control)

Your recorder offers a simple way of skipping over unwanted sections of recorded TV programmes.

During Playback:

1. Press SKIP from 1 to 4 times.
   This fast-motions through 30-sec. to 2-min. of tape.
   - Playback resumes automatically.
   - Press ▶ (Play) to cancel a Skip Search midway.

◄◄ ►► For Tape Access



NOTES:

- Press ► (Play) or ■ (Stop) to cancel Index Search or Blank Search.
- If the end of the tape is reached during Index Search or Blank Search, the mode is cancelled and the tape is rewound to the beginning.
- When a fully recorded tape is used for re-recording new material, Blank Search can be used to detect the end of the new material.

Realtime Tape Counter

Your recorder's tape counter displays the hours, minutes, and seconds of a taped programme. During playback, your recorder's display panel will show a counter reading unless you change it using the DISPLAY button. To reset the counter to "0:00:00" at any time press C. RESET. Also the counter is automatically reset whenever you load a new cassette.

Counter Memory (Remote Control)

During Playback :

1. Press C. RESET (with a counter reading on the display) at a point you wish to locate later.
   - The counter will read "0: 00: 00".
2. Press C. MEMORY.
   - "M" will appear in front of the counter digits.
3. When you wish to return to that point, press ■ (Stop) and then press ◄◄ (Rewind).
   - The tape will rewind and stop at about "0: 00: 00" automatically.

M 0:00:00

4. To cancel the Counter Memory mode, press C. MEMORY.

Index Search (Remote Control)

This function gives you quick access to any one of 9 index codes in either direction. Your recorder automatically marks index codes at the beginning of each recording.

During Playback or Stop:

1. Press INDEX ⏮ or ⏭ . "INDEX –1" or "INDEX +1" will be displayed and search will begin in the corresponding direction.
2. If you wish to access index codes 2 through 9, press INDEX repeatedly until the correct index number is displayed.

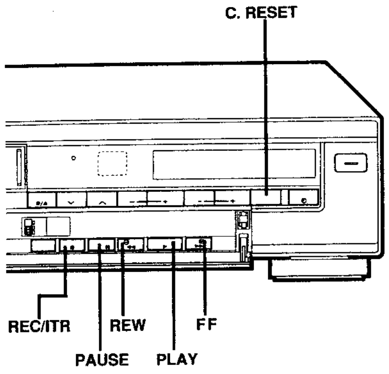
Blank Search (Remote Control)

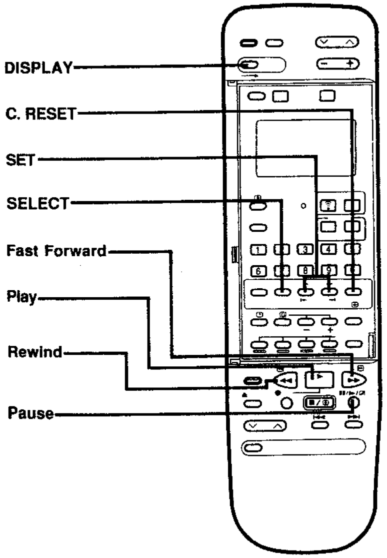
This function lets you quickly locate the blank portion of a partially recorded tape.

During Stop:

1. Press BLANK.
   - The recorder automatically fast-forwards or rewinds to the end of the recorded portion of tape, and stops.
   - The tape's remaining time is automatically displayed. Press DISPLAY to return to the realtime counter display.

● For Recording





NOTES:

- With Retake, rainbow noise may occur in the rewound and re-recorded section.
- The remaining time is inaccurate while the display is blinking. When blinking stops, the remaining time is shown.

Instant Timer Recording (Off Timer) (Recorder)

You can start a recording and then set the recorder to shut off automatically after a set duration.

During Recording:

1. Press REC/ITR (on the recorder). A "REC 0:30" indication appears, advising that power will switch off after 30 minutes.

REC 0:30

2. Press REC/ITR again to delay the off-time by 30-minute increments (up to 4 hours).
   - For a more precise setting, use the SELECT/SET buttons on the remote control unit to set the exact time required (possible up to 4 hours and 59 minutes).

Retake (Recorder and Remote Control)

You can cut out unwanted parts of a TV programme while you're recording it.

During Recording:

1. Press PAUSE.
2. Press FF or REW for normal-speed search to locate the beginning of the unwanted part.
   - Release to return to Record-Pause mode.
3. Press PLAY when you wish to resume recording.

Remaining Tape Time Indication
(Remote Control)

When you need to know the tape's remaining time.

1. Press DISPLAY until "REMAIN" appears. Approximate remaining tape time is displayed.
   - During Record, the remaining time display is shown only for 5 seconds, and then returns to the "REC" indication.

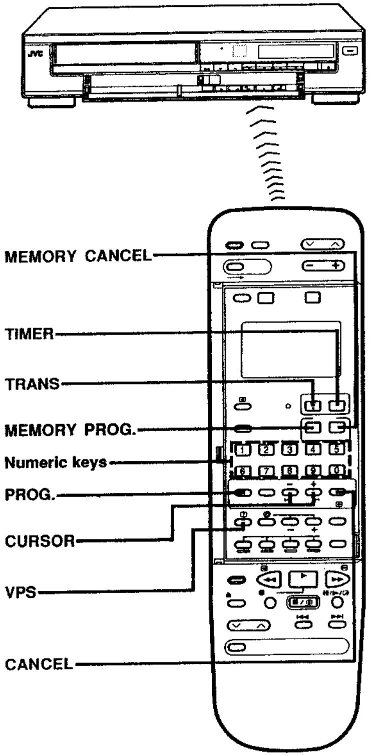
REMAIN 2:59

Elapsed Recording Time Indication
(Remote Control)

When you need to know the exact time of a recording.

1. Press C. RESET and then start recording.
   - The counter will be reset to "0:00:00", and the display will be replaced by the Record mode display after 5 seconds.
2. Press DISPLAY when you want to know the elapsed recording time.

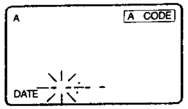
For Timer Recording



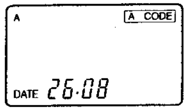
LCD Remote Timer Programming

The timer programming method introduced here lets you use the remote control's LCD memory to program your recorder's timer. The programmed data is held in memory even after it has been transferred to the recorder.

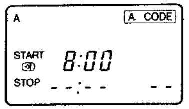
1. Insert a cassette with the safety tab in place.
   - The recorder power will come on automatically.
2. Press MEMORY PROG. to access the LCD timer. (Program A)
   - Four programs (A, B, C, and D) are available. To select another program, press MEMORY PROG.



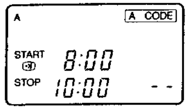
3. Press the appropriate numeric keys to input the date.
   - Example: For 26th August, press 2 6 0 8.



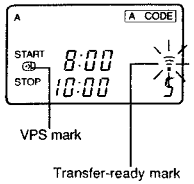
4. Press the appropriate numeric keys to input the start time.
   - Example: For 8:00, press 0 8 0 0.



5. Press the appropriate numeric keys to input the stop time.
   - Example: For 10:00, press 1 0 0 0.



6. Press the appropriate numeric keys to input the channel number.
   - Example: For channel 5, press 5.
   - After the channel has been entered, the transfer-ready mark will appear and blink.
   - Normally, you should leave the VPS mark on so you can take advantage of VPS recording*. You can cancel VPS by pressing the VPS button whenever the memory program is open. If you have any questions about VPS, ☞p.23.



7. Press TRANS with the remote control pointed toward the recorder's Remote Sensor window.
   - You will see "PROGRAM 1" on the display panel, telling you that the data has been successfully transferred to the recorder's Program 1 memory.
8. Press TIMER.
   - The recorder will enter the timer mode and power will go off.
   - To disengage the timer mode, press TIMER again.

---

*VPS adapter is required with "E" version.

To Make Corrections While Programming

During steps 3 — 6, press either CURSOR button so that the item you want to change blinks, and enter new data.

Variations in Step 3 (Weekly Program)

This function lets you set the recorder to timer-record at the same time on the same day every week. Use it to record weekly serials.

- First press numeric key "9" (REPEAT) and then enter the date.

Variations in Step 3 (Daily Program)

This function lets you set the recorder to timer-record at the same time every day. Use it to record daily serials.

- To record a daily serial starting on the day of setting, first press numeric key "8" (DAILY) and then press CURSOR → until the display changes to time input mode.
- To record a daily serial starting on a certain day, first press numeric key "8" (DAILY) and then enter the date.

On Checking And Cancelling Programs

Since executed programs are automatically cleared from memory (except those for daily and weekly serials), cases where the entire memory is full should be rare. If this should happen, check the preset programs and cancel one or more to make room for the new program(s) you wish to input.

TO CANCEL A PROGRAM FROM THE RECORDER'S MEMORY

1. Press PROG.
   - Program 1 is displayed with the number blinking.
2. Press SELECT to review the program contents in succession.
3. Press CANCEL to erase the program from memory.
   - You can press CANCEL at any stage while the program is open.
   - To erase another program, press SET when a blinking program number is displayed.

TO CANCEL A PROGRAM FROM THE REMOTE CONTROL'S LCD MEMORY

1. Press MEMORY PROG. until you find a program you wish to cancel. (A, B, C, or D.)
2. Press MEMORY CANCEL to erase that program from the LCD memory.

Some Facts On Timer Operation

- If the end of the tape is reached during timer-recording, the cassette is automatically ejected and recorder's power is switched off with "TIMER REC" and "TAPE END" flashing alternately on the message display panel.
- When timer-recording is successfully completed, the recorder's power is automatically switched off.
- Since the timer starts and stops recording based on the time being kept by the recorder's built-in clock, the clock's time must be accurate for correct timer-recording results.

VPS Recording

Now available from some TV stations, VPS (Video Program System) is a service designed to assure safe, accurate timer-recording. With this system, special code signals are transmitted together with the audio/video signals. These code signals control your video recorder and have precedence over times you preset in the timer. This means that your recorder will start and stop recording when the preset TV programmes actually start and end — even if the broadcast time of a preset TV programme is changed. If your video recorder is an "EG" model, it already incorporates a built-in VPS decoder. If your recorder is an "E" model and you want to take advantage of this service (if available), you must connect an optional adapter (☞ Specifications) to the VPS/VPV/VPT connector on the rear panel of your recorder.

TO USE VPS SERVICE

- For each timer program, the initial setting is "VPS ON" and you will see "VPS" on the display panel together with a channel number. You do not have to cancel "VPS" even for non-VPS programmes, because those programmes will be recorded at the preset times.
- To cancel "VPS", press the VPS button. Pressing the VPS button alternates the setting, and "VPS ON" or "VPS OFF" is displayed for 2 seconds.
- When you open the LCD timer memory, the LCD display always shows "VPS". If your video recorder is an "E" version and you have not connected a VPS adapter, be sure to cancel "VPS" by pressing the VPS button before transferring the memory data to the recorder.

For Timer-Recording (cont'd)

Error Messages

The following error messages may appear on the message panel when you press the TIMER button to engage the Timer Standby mode. Here's why, and what you should do.

NO CASS

- Displayed for 5 seconds and the Timer Standby mode is cancelled.

WHY: There is no cassette in the recorder.
WHAT TO DO: Insert a cassette. Press TIMER again.

NO REC TAB

- Displayed for 5 seconds. The Timer Standby mode is cancelled.

WHY: The inserted cassette has its safety tab removed.
WHAT TO DO: Eject that cassette. Insert a cassette with its safety tab intact. Or cover the safety tab hole of the cassette with adhesive tape and re-insert it. Press TIMER again. ☞p.9.

NO PROGRAM

- Displayed for 5 seconds. The Timer Standby mode is cancelled.

WHY: There are no preset programs in memory.
WHAT TO DO: Check the programmed data and re-program it as necessary. Press TIMER again.

Other Messages

The following messages may also be encountered during timer-recording.

TIMER (with current hour)

WHY: The recorder is in the Timer Standby mode. This is the normal display you should see when you press the TIMER button.

TIMER REC

WHY: Normal display while timer-recording is in progress.

TAPE END

WHY: If this and "TIMER REC" are alternately displayed, it means that the end of the tape was reached while timer-recording was in progress. Therefore, the preset program may not be recorded in its entirety.

SET CLOCK

WHY: This means the clock must be set. It's displayed when time-keeping is terminated due to a power failure or because the recorder's power plug was pulled from the AC outlet.
WHAT TO DO: Set the clock. ☞p.10.

- If power was interrupted, it's also likely that all preset timer programming data has been erased. Please check and re-program as necessary.

The following messages may be encountered when the TRANS button of the remote control is pressed. ☞p.22.

PROGRAM (with number)

- Displayed for 2 seconds.

WHY: The transferred data has been stored in that program number. (The smallest vacant program number is always selected automatically.)

TRANS ERR

- Displayed for 5 seconds.

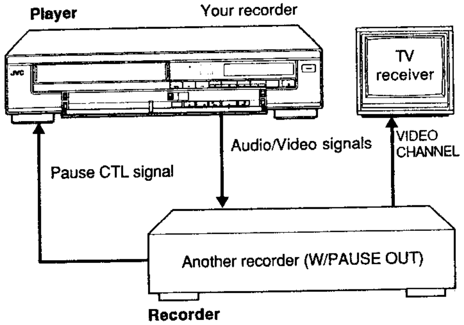
WHY: Data was not successfully transferred. The program may have been incorrectly preset, or the recorder's clock has not been set.
WHAT TO DO: Check the LCD program, and re-program as necessary. Transfer the correct data.

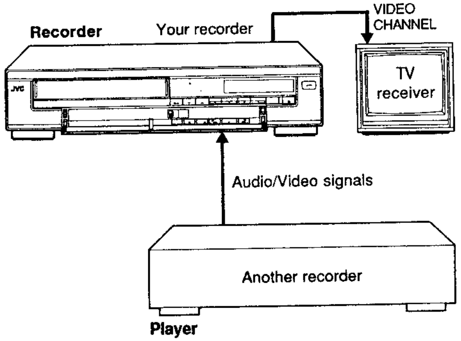
PROG FULL

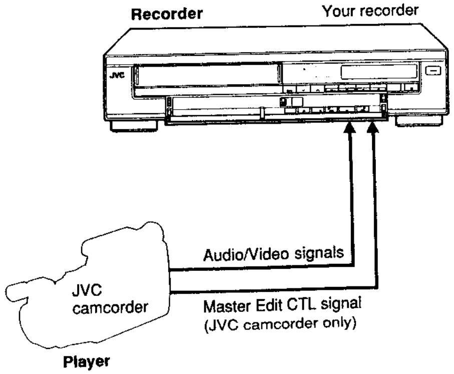
- Displayed for 5 seconds.

WHY: All the recorder's timer programs (1 – 7) are preset.
WHAT TO DO: Cancel unnecessary programs, and transfer again.

For Editing







Editing To/From Another Recorder

Your video recorder can be used as either the recording deck or the source player when editing tapes. When used as the source player in combination with another video deck which is preroll-capable and equipped with a Pause Control Output terminal, your recorder's PAUSE terminal can accept preroll commands for synchronized preroll editing.

PREPARATION

1. Connect the player's AUDIO/VIDEO connector to the recorder's AUDIO/VIDEO connector.

OPERATION

2. Set the recorder to external input mode (AUX).
   - Press numeric key "0", or press TV PROG. until "AUX INPUT" appears on the display panel.
3. Put the player in the Play mode.
4. Put the recorder in the Record mode.

NOTE:

Suitable leads can be obtained from your dealer.

Editing From A JVC Camcorder

Tape-to-tape editing is also possible using a JVC camcorder (equipped with playback facility) as the player and your recorder as the recording deck. In this case, the recorder's PAUSE terminal can be used to accept Master Edit Control commands from the camcorder.

PREPARATION

1. Connect the camcorder's AV OUT connector to the recorder's AUDIO/VIDEO connector.
2. Connect the AV output cable's mini-plug to the PAUSE terminal of the recorder.

- If the camcorder is equipped with the Master Edit Control system, you can control the recorder using the camcorder's controls. See the camcorder's instruction manual for operating procedures.
- With this connection, you can also use the camcorder as a video camera for direct recording onto the recorder's tape. Put the recorder in Record-Pause and use the camcorder's start/stop trigger to start and pause recording. (For direct recording with a separate video camera, a camera adapter is necessary.)

For Reception

Changing Preset Channels

TO CHECK STORED REAL CHANNELS

Use the remote control. First turn on the recorder.

1. Press TV PROGRAM (VTR) to select the channel position of the stored real channel whose number you want to know. (e.g. PR. 10)
2. Press CH.

STORED 10

⬇

REAL Ch26

- This indicates that channel position 10 stores real channel 26.

3. To check other channel positions, press TV PROGRAM (VTR).
   - Either "STORED xx" or "SKIPPED xx" will appear, followed by "REAL Ch.xx" or "REAL CC xx".
4. The Channel Set mode will be cancelled in about 10 seconds unless you call up another channel position. Do not press the CH button; this alternates between Ch and CC bands.

TO DELETE STORED CHANNELS

Use the remote control. First turn on the recorder.

1. Press TV PROGRAM (VTR) to select the channel position you want to skip. (e.g. PR. 10)
2. Press CH.

STORED 10

3. Press SKIP.

SKIPPED 10

⬇

REAL Ch26

- This indicates that real channel 26 has been deleted from channel position 10.

TO STORE NEW CHANNELS

Use the remote control. First turn on the recorder.

1. Press CH.

REAL Ch26

2. Press CH again and keep it pressed until the real channel number starts blinking.
3. Press CH to change the band between Ch and CC, if necessary.
4. Press numeric keys to input the number of the real channel you want to store. (e.g. Ch 26.)

REAL Ch26

⬇

SKIPPED 10

5. Press numeric keys to input the number of a vacant channel position (e.g. 20), and hold the key for the 2nd entry until the display changes to "STORED 20".

STORED 20

⬇

REAL Ch26

- The Channel Set mode will be cancelled automatically after about 60 seconds.

For Convenience

Setting The Clock Forward Or Backward By One Hour (Daylight Saving Time Adjustment)

TO ADVANCE THE TIME BY ONE HOUR

1. Press the remote control's SUMMER TIME ADJUST button and quickly release.
2. Press the TRANS button.
   - The revised time is transferred to the recorder.

TO SET THE TIME BACK BY ONE HOUR

1. Keep SUMMER TIME ADJUST pressed for more than 2 seconds.
2. Press the TRANS button.
   - The revised time is transferred to the recorder.

Turning Off The Display

The fluorescent display on your JVC recorder can be switched off at any time.

1. Press the DISPLAY OFF button on the recorder. The lights in the display will go out.

--:--

2. To restore the display, press the DISPLAY OFF button again.

Locking The Recorder's Controls

To avoid unwanted operation and prevent accidental recording or other interference, use the Child Lock function.

1. Press the remote control's OPERATE (VTR) button to turn the recorder's power off. Keep this button pressed for about 2 more seconds after the power LED indicator has gone off.
   - The Child Lock indicator (✱) will appear between the date and time on the display panel.

31/ 12✱ 10:30

2. Child Lock is automatically deactivated when you switch the recorder's power on again with the remote's OPERATE (VTR) button.
   - Pressing the TIMER button during timer-recording also deactivates the Child Lock mode.

NOTES:

- While the Child Lock mode is engaged, make sure you keep your remote control in a safe place inaccessible to children.
- Timer-recording is possible in the Child Lock mode. After timer-recording has been performed, the Child Lock mode remains in effect.

Remote A/B Code Switching

The remote control is capable of controlling two JVC video recorders independently; one set to respond to your remote control's A code control signals and another set to respond to B code control signals. The remote control is preset to send A code signals (indicated by " A CODE " on the LCD) because your video recorder is initially set to respond to A code signals. You can easily modify your video recorder to respond to B code signals.

1. Unplug the recorder's power cord from the AC outlet.
2. Press the A/B CODE button. (" B CODE " will appear on the LCD.)
3. Plug the power cord back into the AC outlet. Do not use other remote controls at this stage.
4. Turn the recorder power on using the remote control's OPERATE (VTR) button. The recorder will now only respond to B code signals.

CAUTION:

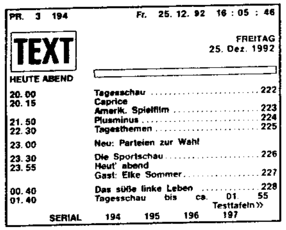
Some TV sets may malfunction in response to the B mode. If this happens switch back to the A mode.

Using The Optional Teletext Adapter

Teletext services have established themselves as one of the most flexible sources of information and broadcast schedules available to TV and video users. Your video recorder is ready to take full advantage of these services. By connecting an optional teletext adapter (☞ Specifications), you'll not only be able to view the vast number of teletext pages now available, you'll be able to transfer broadcast schedule data directly to your recorder's timer for instant, automatic timer programming. You'll also be able to make full use of your remote control's capabilities, with all the dual or triple function controls working as intended. Here are just a few examples of features available to you when you connect an optional teletext adapter.

TELETEXT

- View broadcast teletext pages.
- Several page access modes are available for quick, convenient location of pages you want to see.
- You can program the video recorder's timer directly using TV schedule pages.



PR. 3 194 Fr. 25. 12. 92 16 : 05 : 46

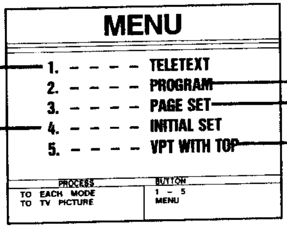
TEXT

FREITAG
25. Dez. 1992

HEUTE ABEND

20. 00	Tagesschau	222
20. 15	Caprice Amerik. Spielfilm	223
21. 50	Plusminus	224
22. 30	Tagesthemen	225
23. 00	Neu: Parteien zur Wahl	
23. 30	Die Sportschau	226
23. 55	Heut' abend Gast: Elke Sommer	227
00. 40	Das süße linke Leben	228
01. 40	Tagesschau bis ca. 01 55 Testtafeln »	

SERIAL 194 195 196 197



MENU

1. – – – – TELETEXT
2. – – – – PROGRAM
3. – – – – PAGE SET
4. – – – – INITIAL SET
5. – – – – VPT WITH TOP

PROCESS	BUTTON
TO EACH MODE	1 – 5
TO TV PICTURE	MENU

INITIAL SET

LANGUAGE

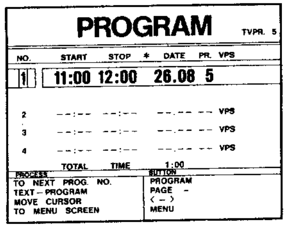
- Select one of four languages (English, German, Italian, or Swedish) for on-screen messages.

CLOCK ADJUST

- Set the recorder's clock manually using the numeric keys.
- Set the recorder's clock automatically by reading teletext time information.

PROGRAM

- Check timer recording data on the colour on-screen display.
- Program the timer manually with the remote's numeric keys.



PROGRAM TVPR. 5

NO.	START	STOP	＊	DATE	PR.	VPS
1	11:00	12:00		26.08	5	
2	--:--	--:--		--.--	--	VPS
3	--:--	--:--		--.--	--	VPS
4	--:--	--:--		--.--	--	VPS

TOTAL TIME 1:00

PROCESS	BUTTON
TO NEXT PROG. NO.	PROGRAM
TEXT – PROGRAM	PAGE –
MOVE CURSOR	‹ – ›
TO MENU SCREEN	MENU

PAGE SET

- You can preset favourite or often-referred-to pages for immediate access.
- Up to four pages can be stored on each of the numeric keys, for a total of 40 pages.

VPT WITH TOP

- TOP automatic teletext timer programming.
- Convenient colour-coded page access.
  *"5.– – – – VPT WITH TOP" only appears when the video recorder's tuner is tuned to a station transmitting TOP broadcasts. (Applicable only in certain areas.)

ATTENTION

Some buttons on the remote control unit are labelled with pictograms indicating the functions that can be used when the VPT adapter is connected. When reading the VPT adapter's instruction manual, keep in mind the correspondence between these pictograms and the labels referred to in the instruction manual:

⊜ : LARGE/NORMAL	⊕ : HOLD
⍰ : REVEAL	◪ : MIX
◷ : TIMED PAGE	→ : ROTATE

Display Panel Messages

Displayed Message	When It Appears, What It Means
During Clock Set	
31/12 10:30	"31st December, 10:30" is successfully transferred.
During Program Set	
PROGRAM 1	"Program 1" has been opened/ set/cancelled/successfully transferred.
DATE 31/12	"31st December" is input for the recording start date.
REPT 31/12	"Repeat" command is input for recording of a weekly serial.
DAILY 31/12	"Daily" command is input for recording of a daily serial.
START 11:00	"11:00" is input for the recording start time.
STOP 12:30	"12:30" is input for the recording stop time.
VPS PR. 10	"10" is input as the channel to be recorded, with VPS ON.
VPS ON	""VPS" status is changed from OFF to ON. Displayed for 2 seconds.
VPS OFF	"VPS" status is changed from ON to OFF. Displayed for 2 seconds.
During Channel Set	
REAL Ch 02	"Real Channel 02 in Ch band" is stored.
REAL CC 02	"Real Channel 02 in CC band" is stored.
REAL Ch :15	"Real Channel 15 in Ch band" is received, but not stored.
SKIPPED–10–	Channel position "10" is currently called up, and ready for input.
STORED 10	Received real channel has been stored in channel position "10".
FINE - Ch 15	"Fine tuning" is engaged for "Real Channel 15 in Ch band"
During Normal Operation	
PLAY	Normal playback is in progress.
STOP	Tape has been stopped.
STILL	A still picture is being viewed.
FF	Fast-forwarding.
REW	Rewinding.
REC 10	Recording "Channel 10".
REC AUX	Recording "External Input".
REC 1:30	Recording with the Off Timer set to shut off in 1 hour 30 minutes.
PAUSE 10	Recording is paused.
TIMER REC	Timer-recording is in progress.
FWD SLOW	Slow motion playback is in progress.
FWD SEARCH	Forward search is in progress.
REV SEARCH	Reverse search is in progress.
SKIP	Skip Search is in progress.
BLANK	Blank Search is in progress.
INDEX +9	Searching for the 9th index code in the forward direction.
INDEX –4	Searching for the 4th index code in the reverse direction.
INDEX MARK	Index code is being marked.
REPEAT	Repeat playback is in progress.
PR. 10	Channel 10 is being received.
VPS PR.10	A VPS programme is being received on channel 10.
AUX INPUT	External input mode.
EJECT	Cassette is being ejected.

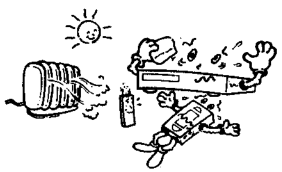
Displayed Message	When It Appears, What It Means
During Next Function Memory	
REW – OFF ⤵ OFF	Will rewind to the beginning and then shut off automatically.
REW – PLAY ⤵ PLAY	Will rewind to the beginning and then start playback automatically.
REW – TIMER ⤵ TIMER	Will rewind to the beginning and then enter the timer mode automatically.
REW – EJECT ⤵ EJECT	Will rewind to the beginning and then eject the tape automatically.
Clock and Counter Displays	
4:30:15	Tape counter reading of "4 hours, 30 minutes, 15 seconds".
M 4:30:15	Same as above with Counter Memory ON.
REMAIN 2:24	2 hours and 24 minutes of recording time remaining on the tape.
31/12 10:30	It is 31st December, 10:30. (Standard date/time display when recorder power is turned off)
31/12 ✗ 10:30	Same as above with Child Lock ON.
TIMER 10:30	It is 10:30 and the Timer Standby mode is engaged.
SET CLOCK	The clock is not set. Please set it.
SET CLOCK ✗	Same as above with Child Lock ON.
TIMER REC ⤵ TAPE END	End of tape was reached during timer-recording.
--:--	Display is turned OFF.
Error Messages	
NO CASS	There is no cassette in the recorder.
NO REC TAB	The cassette's record tab is removed.
NO PROGRAM	No program has been preset.
TRANS ERR	Transfer is rejected due to wrong data.
PROG FULL	Transfer is rejected due to no vacant programs.
Other Messages	
GOOD MORNING ⤵ GOOD AFTERNOON ⤵ GOOD EVENING ⤵	Automatic greetings when the recorder is turned on.
GOOD-BYE GOOD NIGHT	Automatic greetings when the recorder is turned off.

NOTES:

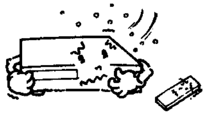
This list represents the various types of messages your recorder is capable of generating. Actual messages displayed by your recorder (esp. if date, time, channel, tape counter reading, or other variables are involved) will differ slightly from those listed here.

Precautions

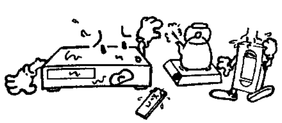
Please follow these safety precautions. Not doing so may result in damage to the recorder, remote control, or video cassette.



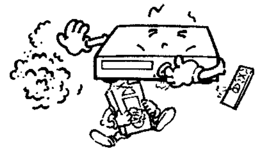
Avoid extreme heat and direct sunlight



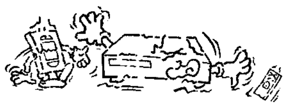
Avoid extreme cold



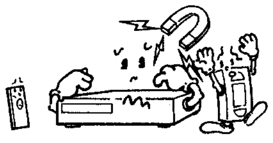
Avoid extreme humidity



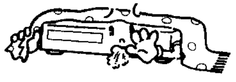
Avoid dust



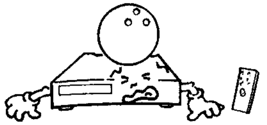
Avoid places subject to vibrations



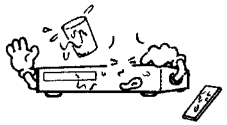
Avoid strong magnetic fields



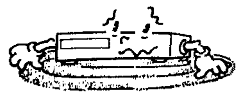
Do not block the recorder's ventilation openings



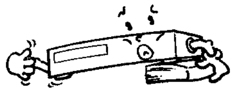
Do not place anything heavy on the recorder or remote control



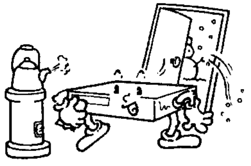
Do not place anything which might spill on top of the recorder or remote control



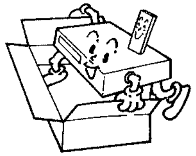
Do not place the recorder on cushions, pillows, or thick carpeting



Use the recorder in a stable, horizontal position only

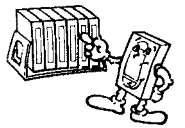


Beware of moisture condensation
Moisture in the air will condense on the recorder when you move it from a cold place to a warm place, or under extremely humid conditions — just as water droplets form on the surface of a glass filled with cold liquid. Moisture condensation on the head drum will cause damage to the tape. In conditions where condensation may occur, keep the recorder's power turned on for a few hours to let the moisture dry.



When transporting

- Be sure to remove cassette from recorder before packing
- Avoid violent shocks to the recorder during packing and transport



Place cassettes in cassette cases and store vertically

In Case Of Difficulties

POWER AND TAPE TRANSPORT PROBLEMS

Symptoms	Check points
No power is applied to the recorder.	■ Is the power cord disconnected? — Connect it.
Clock is functioning properly, but the recorder cannot be powered.	■ Is "TIMER" displayed on the display panel? — Press the TIMER button to extinguish the display.
Tape does not run during recording.	■ Is "PAUSE" displayed on the display panel? — Press the PLAY button to extinguish the display.
Tape stops during rewind or fast-forward.	■ Is the C. MEMORY button pressed? — Press again to make "M" disappear from the display panel.
Tape will not rewind or fast-forward.	■ Is the tape already fully rewound or fast-forwarded? — Check the cassette.

RECORDING PROBLEMS

Symptoms	Check points
Recording cannot be started.	■ Is a cassette loaded? ■ Is the safety tab on the cassette removed? — Reseal the slot with adhesive tape.
TV broadcasts cannot be recorded.	■ Has "AUX" been selected? — Set to the desired channel.
Tape-to-tape editing is not possible.	■ Is the camcorder or another video recorder correctly connected? ■ Are all necessary power switches turned ON? ■ Has "AUX" been selected? — Set to "AUX".
Camera recording is not possible.	■ Is the camcorder correctly connected? ■ Has "AUX" been selected? — Set to "AUX".
Timer recording is not possible.	■ Have you set the clock correctly and programmed the timer correctly? — Check once again. ■ Is "TIMER" displayed on the display panel? — If not, press the TIMER button to display "TIMER".

PLAYBACK PROBLEMS

Symptoms	Check points
Playback picture does not appear while the tape is running.	■ If you are using RF OUT connection, is the TV receiver's channel selector set to the correct video channel? — Set it to the RF converter channel (UHF 36). (☞p.8) ■ If you are using AV connection, is the TV receiver set to the AV mode? — Set it to the AV mode.
Playback is repeated.	■ Is the REPEAT switch set to either FULL or INDEX? — Set it to OFF.
Noise appears during visual search.	■ This is normal.
Noise appears during normal playback.	■ Is the automatic tracking mode engaged? — Try manual tracking. (☞p.19)
Noise appears during slow motion playback.	— Try manual tracking. (☞p.19)
Noise appears during still playback.	— Press Pause/Still a few times to remove the noise bars from the screen.
Playback picture is blurred or interrupted while TV broadcasts are clear.	■ Video heads may be dirty. — Head cleaning is necessary. Consult your JVC dealer. (☞p.33)

SECTION 1
DISASSEMBLY AND MECHANISM ADJUSTMENTS

1.1 DISASSEMBLY

1.1.1 Top cover

1. Refer to Fig. 1-1-1 and set for the EJECT (Stop) mode and disconnect VCR from AC power.
2. Take out 5 screws Ⓐ . To remove the top cover, slide in direction of arrow and lift away.

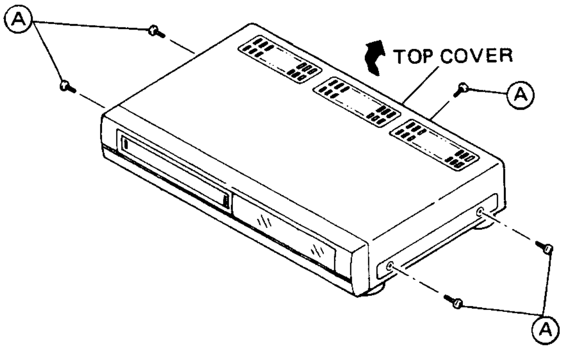


Fig. 1-1-1 Top cover

1.1.2 Front panel assembly

1. Remove the top cover.
2. Carefully disengage 3 tabs Ⓑ of the front panel assembly from the upper side of the chassis.
3. Refer to Fig. 1-1-2 and pull the front panel assembly forward you to disengage 3 tabs Ⓒ of the front panel assembly from the bottom side of the chassis, then remove the front panel assembly.

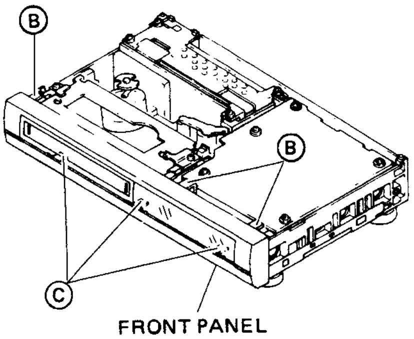


Fig. 1-1-2 Front punel

1.1.3 Bottom cover

1. Remove the top cover.
2. Refer to Fig. 1-1-3 and take out 5 screws Ⓓ and disengage 4 claws Ⓔ from the bottom of the chassis.
3. Disengage the bottom cover from the bottom of the chassis slide indirection of arrow and disengage 2 tabs Ⓕ.

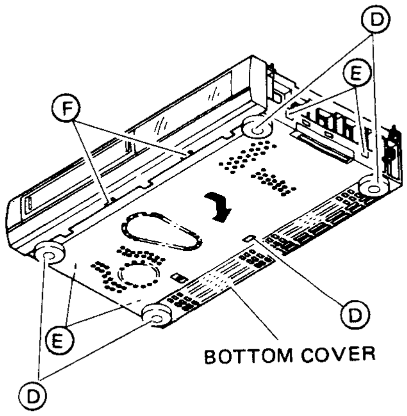


Fig. 1-1-3 Bottom cover

1.1.4 Main board assembly

1. Remove the top cover.
2. Refer to Fig. 1-1-4 and take out 5 screws Ⓖ and 1 screw Ⓗ from main board assembly.
3. Remove the main board assembly in the upward direction.

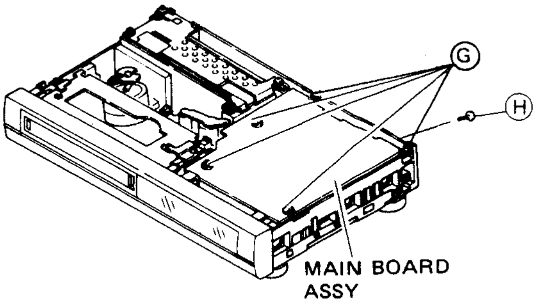


Fig. 1-1-4 Main board

1.1.5 Cassette housing

1. Remove the top cover and main board assembly.
2. Refer to Figs. 1-1-5 and 1-1-6.
   Take out 4 screws Ⓙ that secure the cassette housing. Disengage 3 tabs Ⓚ of the front panel and pull the front panel forward where it does not interfere with removing the cassette housing.
3. Remove the cassette housing in the upward direction.

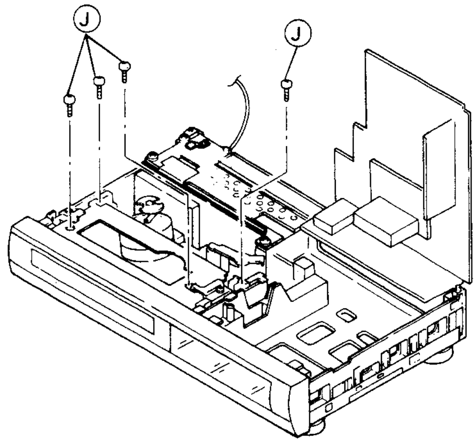


Fig. 1-1-5 Cassette housing(a)

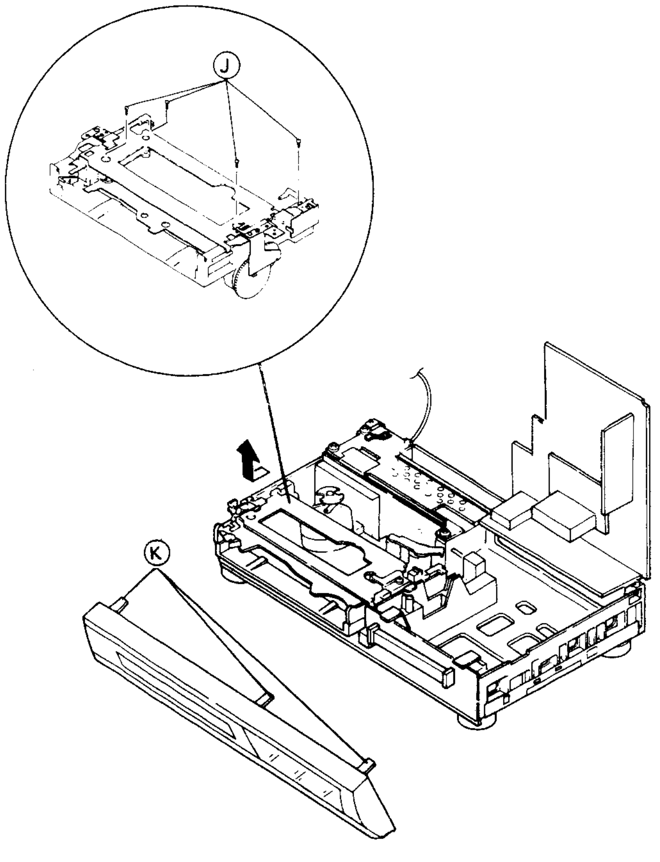


Fig. 1-1-6 Cassette housing(b)

1.1.6 Cassette housing installation

1. On the main deck, observe the positional relationships of the parts indicated in Fig. 1-1-7.
   If necessary, turn the loading motor by hand to obtain these positions.

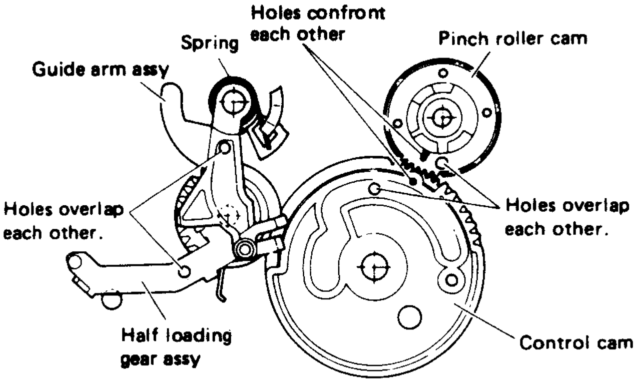

Holes confront each other
Spring
Pinch roller cam
Guide arm assy
Holes overlap each other.
Holes overlap each other.
Half loading gear assy
Control cam

Fig. 1-1-7 Cassette housing installation

2. Confirm that the clutch of the worm clutch assembly is locked. If necessary, engage the locked.

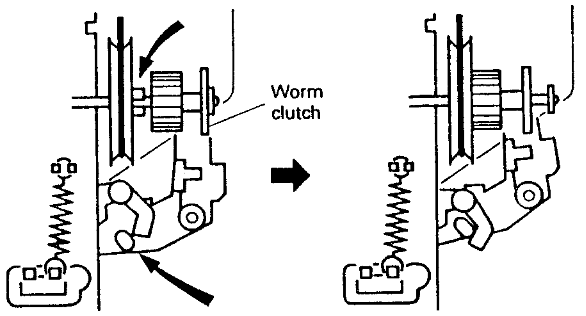

Worm clutch

Fig. 1-1-8(a) Not locked **Fig. 1-1-8(b)** Lock engaged

3. Check that the cassette housing is in the eject state (internal holder of the cassette housing is locked in raised position).
   Set the cassette housing into place and secure with 4 screws.
4. Install the front panel as shown in Fig. 1-1-9 and re-engage the tabs. Supply power and use a spare cassette to check for normal loading and eject operations.

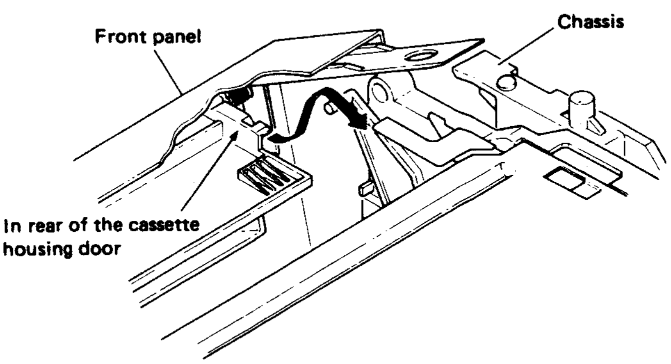

Front panel
Chassis
In rear of the cassette housing door

Fig. 1-1-9 Cassette housing door

5. Disconnect VCR from power, then reinstall the main board assembly and top cover.

1.1.7 Main-deck

1. Remove the top cover, front panel assembly and main board assembly.
2. Refer to Fig. 1-1-10 and take out 3 screws Ⓛ from the main-deck assembly.
3. Remove the main-deck assembly in the upward direction and disconnect a connector CN1 from the DECK TERMINAL board, connectors CN1 from the Pre/Rec board, connector CN1 ,CN2 from the A/C head board, connector CN1 from the Loading MDA board and connector CN1 from the Drum MDA board.

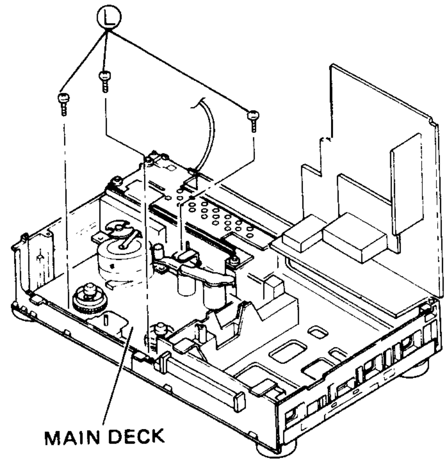


Fig. 1-1-10 Main-deck

1.1.8 Switching regulator board assembly

1. Remove the top cover.
2. Refer to Fig. 1-1-11 and take out 4 screws Ⓜ from the switching regulator board assembly.
3. Remove the switching regulator board assembly in the upward direction.

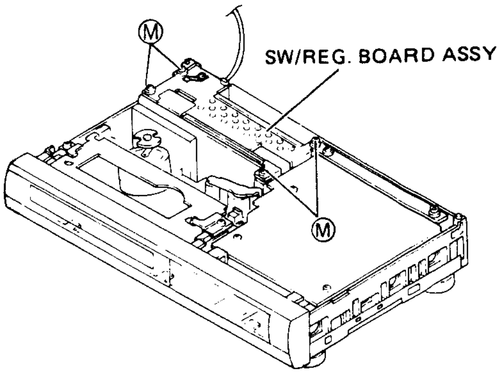


Fig. 1-1-11 Switching regulutor board

1.2 MECHANISM ADJUSTMENTS

1.2.1 Precautions

1. Disconnect mainframe from AC power before soldering.
2. Avoid imparting stress to wires when disengaging connectors.
3. Determine and correct the cause of difficulty before proceeding to adjustments. Do not disturb settings unnecessarily.
4. Use care not to damage tabs, claws, etc. during repairs.
5. Install the cassette housing assembly only when the mechanism is in the Eject or Stop mode position. In the Eject mode, the internal holder of the housing is fully raised. This is fully lowered in the Stop mode.
6. When installing the front panel assembly, be sure to engage the housing door with the door lever of the cassette housing assembly. If this is omitted, the door will not open at Eject and the cassette cannot be removed.

1.2.2 Check without cassette housing

Mechanism operations can be observed easily by removing the cassette housing assembly. Note the following.

1. Disable the photo transistor sensor (END SENSOR) on the main-deck by applying an opaque cover.
2. Connect pins 2 and 3 of Main board connector CN601.
3. Select the desired modes with the operation buttons. However, notice that without tape, setting for the reverse direction modes produces the Stop mode after a few seconds due to absence of the reel sensor output.

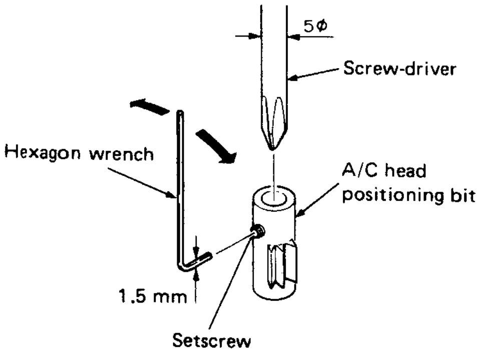


Fig. 1-2-1 A/C head positioning tool

1.2.3 Manually removing cassette tape

In event of electrical system failure that prevents the tape from being unloaded, the tape can be removed manually by the following procedure. Refer to Figs. 1-3-1, 1-3-2 and 1-3-3.

1. Disconnect power cord from AC outlet.
2. Turn the loading motor by hand so that the control cam rotates clockwise. This retracts the pole base assembly to the unloading position.
3. Continue turning to where the guide arm and half loading gear assemblies shift to beneath the cassette.
4. Turn the clutch assembly at the rear of the deck to absorb slack tape within the cassette.
5. Again turn the loading motor in the same direction to raise the cassette and remove it.

1.2.4 Test equipment

The following special tools and fixtures are required for mechanism adjustment.

1. Alignment tape MH-2
   Stairstep signal is employed for interchangeability checks and adjustments.
2. Torque gauge : PUJ48075-2
   Measures tape take-up torque.
3. Back tension cassette gauge : PUJ48076-2
   Measures tape tension at the supply side.
4. A/C head positioning bit : PTU94010
   - Shifts the head base for adjusting the control head position.
   - **The installation of a A/C head positioning bit on the screw-driver.**
     Refer to Fig. 1-2-1. Set screw-driver into the A/C head positioning bit where it does not interfere with adjusting the A/C head adjusting boss (position the screw-driver point 6 ± 2 mm from point of the A/C head positioning bit). Slightly tighten the setscrew by hexagon-wrench (1.5 mm).
5. Roller driver : PTU94002
   Turns the guide roller for adjusting FM linearity.

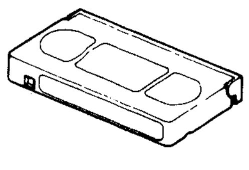
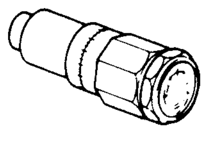
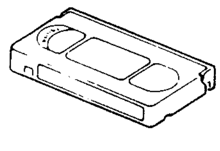
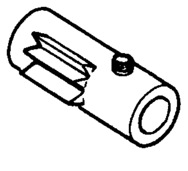
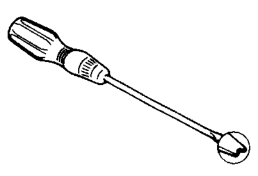
Alignment tape 1	Torque gauge 2	Back tension cassette gauge 3	A/C head positioning bit 4	Roller driver 5
				

Fig. 1-2-2 Test equipment

1.3 MAIN MECHANISM PARTS

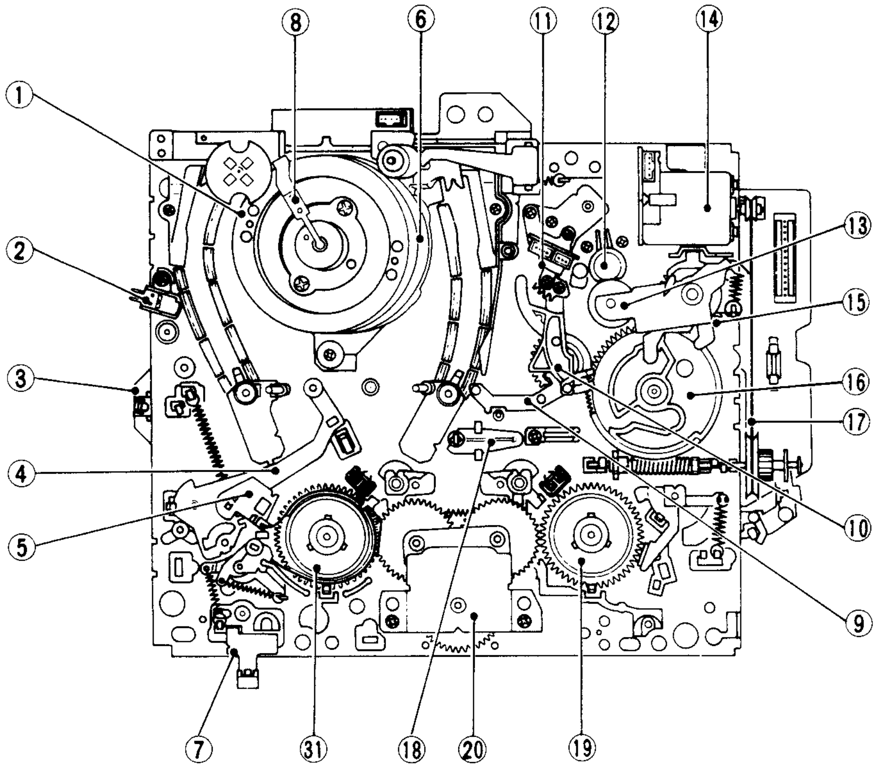

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Fig. 1-3-1 Top view of main-deck

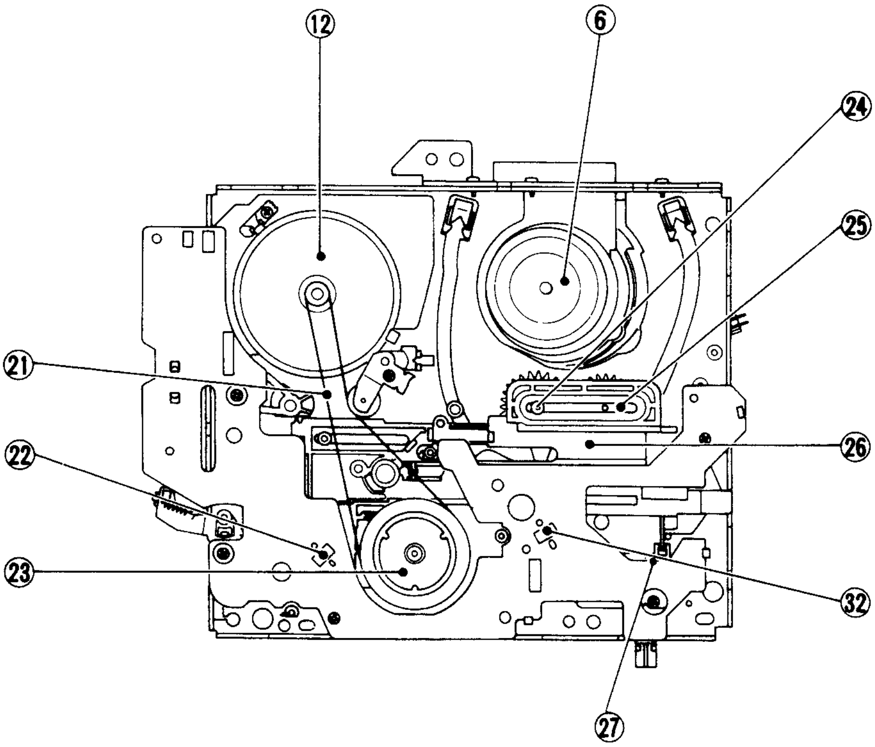
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Fig. 1-3-2 Bottom view of main-deck

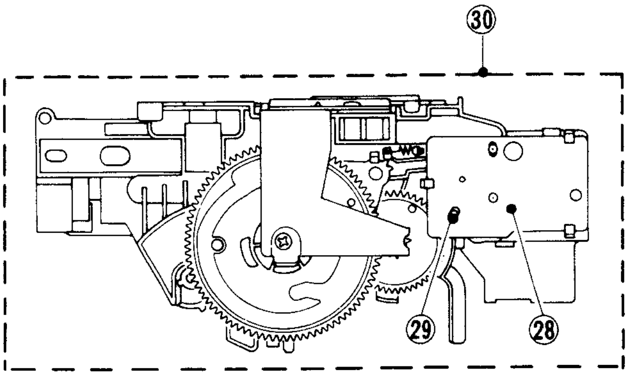


Fig. 1-3-3 Side view of cassette housing

A. Cleaning

Periodic cleaning of the tape transport system is desirable, but ordinarily not feasible in practice. Therefore, perform cleaning when a set is brought in for repairs or maintenance. Contamination of the video heads, tape guides and brushes can detract from playback picture quality and in extreme cases, even damage the tape. For cleaning, use a fine-mesh cotton cloth (about the texture of a white dress-shirt) moistened in alcohol.

- To clean the video heads, press the moistened cloth gently against the upper drum with fingertip and turn the drum by hand.
- Do not use a vertical stroke, as this may damage the heads.

B. Lubrication

Oil and grease do not normally require periodic replenshing. Apply only when replacing lubricated parts (also clean and replace lubrication of mating parts if soiled).

For parts and points to apply oil and grease, refer to the exploded views of the mechanism assembly.

Before oiling, clean with alcohol.
Apply one or two drops of oil. Avoid excess oil.

1. Table 1-1 indicates the oil and grease used in this set. Use these or recommended locally available equivalents.

Category	Part No.
Oil	COSMO-HV56
Grease	KANTO-G-31KAV

Table 1-3-1

2. Grease is not required for a replacement cassette housing assembly, as this has been applied at the factory.

Note: ***Stir grease that has been stored for an extended period.***

C. Main mechanical parts

See Fig.s 1-3-1, 1-3-2 and 1-3-3.

No.	Symbol	Parts Name	See Section
1	M32A	Upper drum assy	1.5.1
2	M44	Full erase head	
3	51Q1	End sensor	
4	M41	Tension arm assy	1.5.4
5	M42	Tension band assy	1.5.4
6	M32C	Lower drum motor assy	1.5.2
7	M461	REC safety switch	
8	M32D	Brush assy	
9	M449	Half loading gear assy	1.5.5
10	M447	Guide arm assy	1.5.5
11	M48	A/C head	1.5.3
12	M422	Capstan motor	
13	M442	Pinch roller arm assy	
14	M434	Loading (Mode) motor assy	
15	M446	Pinch roller cam	1.5.5
16	M438	Control cam	1.5.5
17	M437	Loading belt	
18	M460	LED holder	
19	M430	Reel disk (take-up)	
20	M424	Idler gear unit	
21	M429	Reel Belt	
22	51PS1	Take up reel sensor	
23	M426	Clutch unit	1.5.6
24	M433	Take up loading arm assy	1.5.7
25	M432	Supply loading arm assy	1.5.7
26	M439	Plate assy	1.5.7
27	M462	Slide encorder (S3)	
28	56PHS3	Cassette sensor	
29	56Q2	Start sensor	
30	M36	Cassette housing assy	
31	M470	Reel disk (supply)	
32	51PS2	Supply reel sensor	

- Symbol interpretation example

M32A
M = Exploded view symbol
32A = Ref. No.

56 Q2
56 = Board No.
Q2 = Ref. No.

Table 1-3-2

1.4 INSPECTION AND MAINTENANCE

This product employs rotary and moving parts which wear out in the course of usage. Periodic inspection, cleaning, lubrication and maintenance are therefore important for ensuring maximum performance. Worn parts must also be replaced at when required.

1.4.1 Suggested servicing schedule for main components

The following table indicates the suggested period for such service measures as cleaning, lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions. However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary.

Also note that rubber parts may deform in time, even if the set is not used.

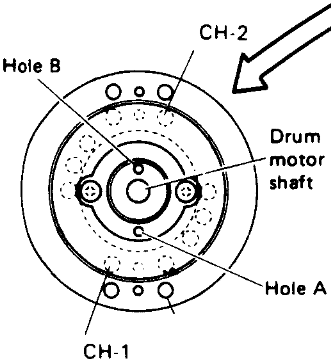
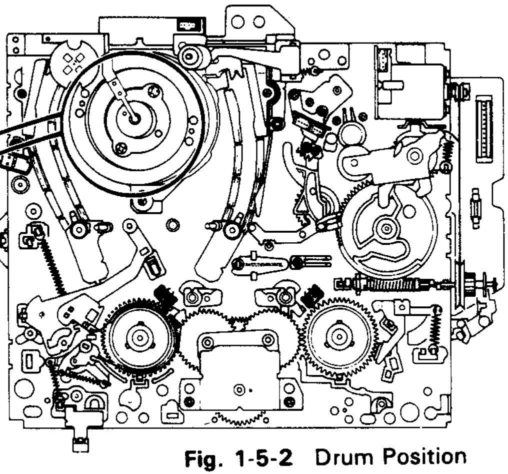
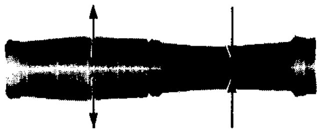
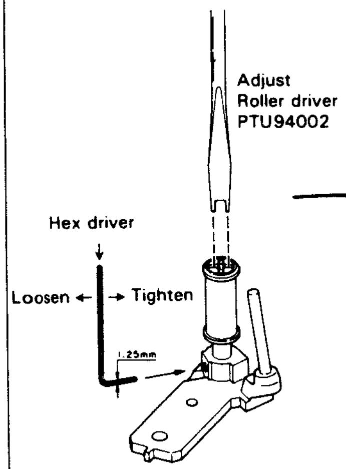
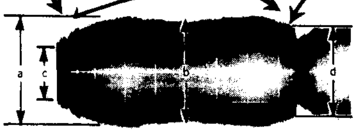
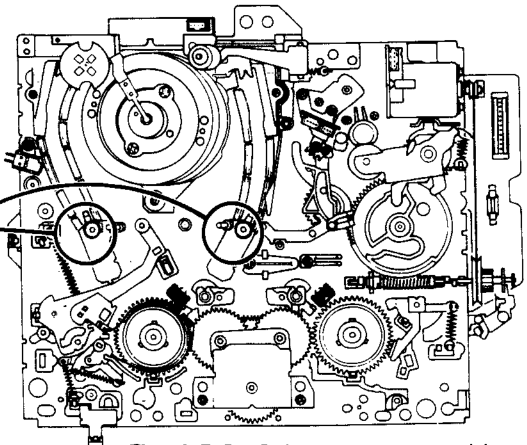
System	No.	Parts Name	Symbol No.	Periodic servicing schedule (operation hours)							
				250	500	750	1000	1250	1500	1750	2000
Tape Transport	1	Upper drum assy	M32A	★	★	☆	○	○	○	○	○
	11	A/C head	M48	★	★	★	○	○	○	○	○
	13	pinch roller arm assy	M442	★	★	★	○	○	○	○	○
	2	Full erase head	M44	★	★	★	○	○	○	○	○
	4	Tension arm assy	M41								
	6	Lower drum assy	M32C				○	○	○	○	○
	12	Capstan (shaft) motor	M422	★	★	★	★	★	★	★	★
	9	Half loading gear assy	M449								
	10	Guide arm assy	M447								
Drive	12	Capstan motor	M422				○	○	○	○	○
	17	Loading Belt	M437				○	○	○	○	○
	21	Reel Belt	M429				○	○	○	○	○
	19	Take-up reel disk	M430				○	○	○	○	○
	31	Supply reel disk	M470				○	○	○	○	○
	23	Clutch Unit	M426								○
	14	Loading motor assy	M434				○	○	○	○	○
		Worm clutch assy	M436								△
	26	Plate assy	M439								△
Othere	5	Tension band	M42				○				○
	8	Brush	M32D				○				○

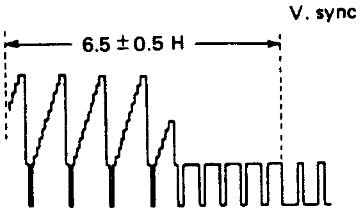
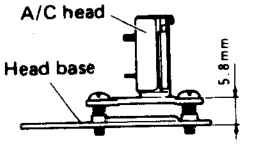
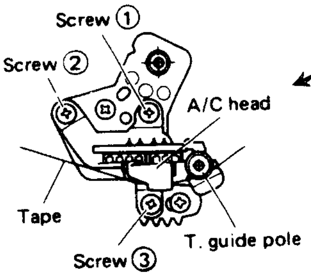
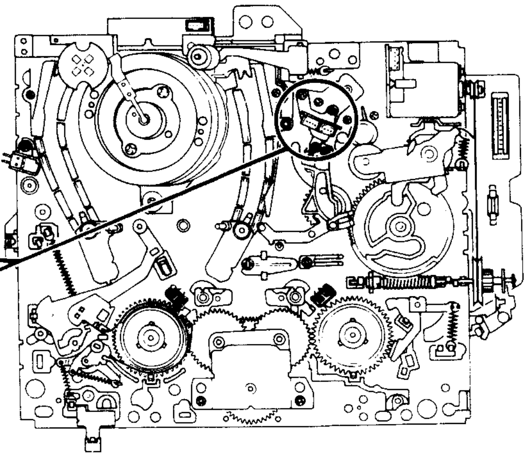
★ : Cleaning
☆ : Cleaning (or Replacement if necessary)
△ : Lubrication
No: Refer to Main mechanical parts

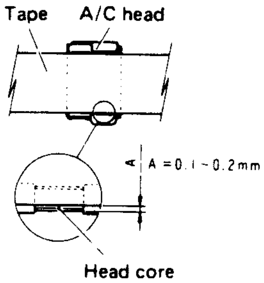
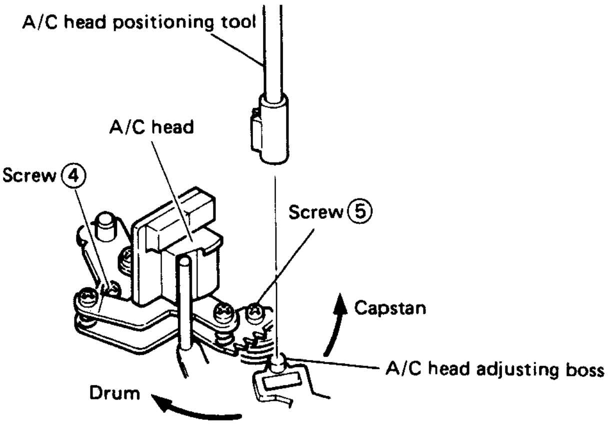
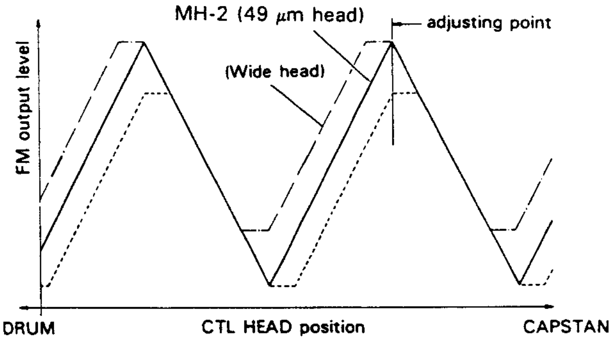
▲: Lubrication (or Replacement if necessary)
○: Inspection or Replacement if necessary

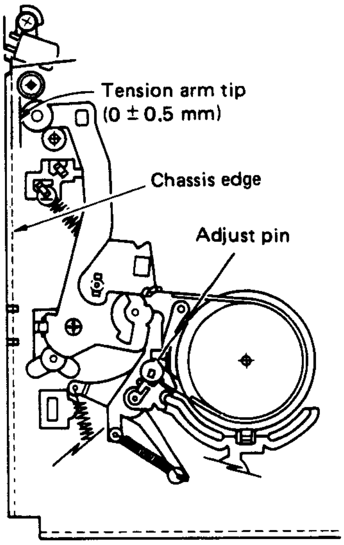
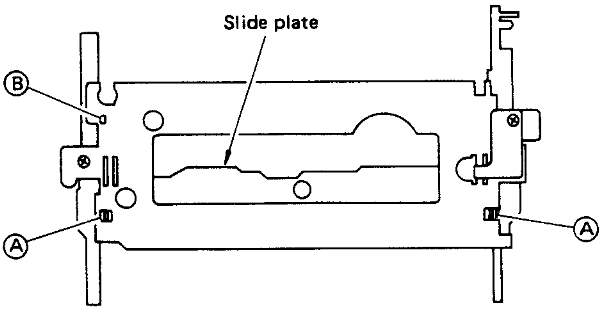
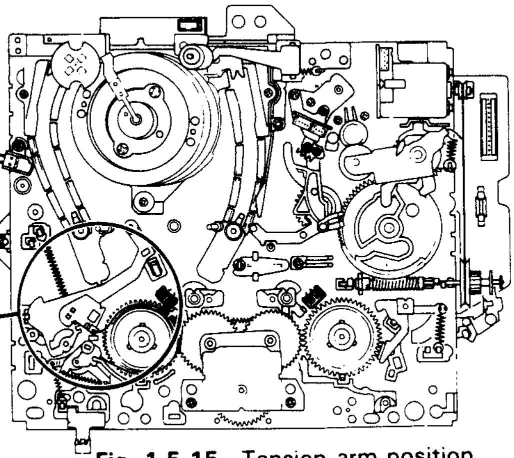
Table 1-4-1 Approximate maintenance schedule

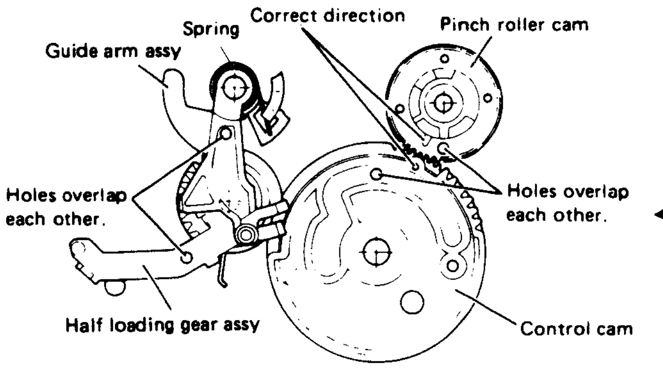
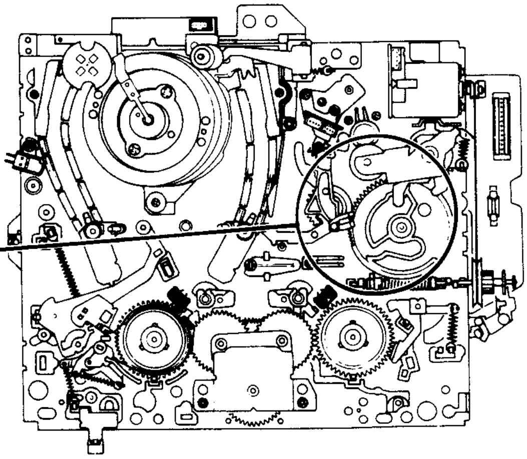
1.5 MAIN PARTS REMOVAL AND REPLACEMENT

No.	Item	Checkpoints	Adjustment and Checks
1	Upper drum assembly •Symptoms: FM signal absent, intermittent or weak on one channel; large difference in channel output levels •Cause: Worn or damaged video heads, poor response, etc.  **Fig. 1-5-1** **Drum Top View**	 **Fig. 1-5-2** Drum Position Mounting direction See Fig. 1-5-1. (Symptom: no picture)	After replacing, observe that upper drum hole A is opposite the motor axis from lower drum hole B.
		Axis wobble See Fig. 1-5-2. (Symptom: jitter, poor FM linearity) PB FM: Main board TP206 DRUM FF: Main board TP411	Record and playback in SP mode. Confirm absence of large difference between channels. (Fig. 1-5-3)  **Fig. 1-5-3** Axis wobble
	 Adjust Roller driver PTU94002 Hex driver Loosen Tighten 1.25mm **Fig. 1-5-4** S.T. Pole base	FM linearity check See Fig. 1-5-5. (Symptom: vertical sync absent, picture noise) PB FM: Main board TP206 DRUM FF: Main board TP411  **Fig. 1-5-5** FM linearity $\frac{b}{a} \geq 0.7, \frac{c}{a} \geq 0.65, \frac{d}{a} \geq 0.65$	 **Fig. 1-5-6** S.T. Pole base position 1) Play stairstep signal of the MH-2 Alignment Tape. Confirm absence of obvious FM waveform loss and that operating the Tracking yields the optimum point. 2) Refer to Fig. 1-5-4, adjust for loss at the left edge (drum entry) of the FM waveform by turning the guide roller of the supply pole base. Similarly, adjust for loss at the right edge (drum exit) by turning the guide roller of the take-up pole base. **Note:** ***If FM loss occurs on both channels and cannot be corrected by adjusting the guide rollers, the lower drum needs replacement.***

No.	Item	Checkpoints	Adjustment and Checks
	PB switching point •Symptom: switching noise at picture bottom.	TP210 (VIDEO OUT)  Fig. 1-5-7 PB Switching Point	1) Connect an oscilloscope to TP210. 2) Set the MH-2 alignment tape into the cassette housing. Play back the stairstep segment of MH-2 alignment tape. 3) Trigger the oscilloscope externally (– slope) with the signal from TP411 (DRUM FF) of the main board. 4) Adjust R420 (PB switching point) to position the trigger point 6.5 H ±0.5 H from V. sync as shown in Fig. 1-5-7.
2	Lower drum assembly •Symptoms: Poor FM linearity, noisy rotation, jitter •Cause: Lead and bearing wear	Check FM linearity and switching point.	See above upper drum assembly items.
		Check control head phase (X value) Symptom: tracking error PB FM: Main board TP206 DRUM FF: Main board TP411	1) Play stairstep signals of MH-2 Alignment Tape. Engage the Tracking Preset mode by pressing the + and – buttons simultaneously in the onscreen mode. Confirm that the same maximum FM waveform level is obtained as when the tracking is adjusted manually. 2) Refer to the A/C head adjustments.
3	**A/C head**  Fig. 1-5-8 Temporary height  Screw ① Screw ② A/C head Tape T. guide pole Screw ③ Fig. 1-5-9 Inclination/Azimuth/ Height adj.	 Fig. 1-5-10 A/C HEAD position Temporarily set height as indicated in Fig. 1-5-8.	Set the height as indicated in Fig. 1-5-8 to facilitate tape transport checks and adjustments.
		Tilt (forward inclination) See Fig. 1-5-9. (Symptom: audio level varies greatly.)	1) Run tape, turn screw ① counterclockwise to where slight curling of the tape occurs at the lower flange of the take-up guide roller. 2) Then slowly turn the screw clockwise to where the curling ceases.
		Azimuth See Fig. 1-5-9. (Symptoms: audio low level or noisy) Audio output: Main board AUDIO OUT	1) Play stairstep signal (with audio 6 kHz) of the MH-2 Alignment Tape. Observe audio output signal with oscilloscope. 2) Turn screw ② and adjust for maximum audio output level.

No.	Item	Checkpoints	Adjustment and Checks
	 **Fig. 1-5-11** Height	Height See Fig.s 1-5-9 and 1-5-11. (Symptom: low audio and control signal levels)	1) Run tape and observe the control head area. 2) Turn screws ①, ② and ③ by small and equal amounts until 0.1 to 0.2 mm of the head core bottom can be seen. Note: *If difficult to observe, play stairstep signal of MH-2 Alignment Tape and adjust for maximum audio output and control pulse level.*
		FM linearity	Refer to upper drum assembly items. If adjustment is major, again check the azimuth.
	 A/C head positioning tool A/C head Screw④ Screw⑤ Capstan A/C head adjusting boss Drum **Fig. 1-5-12** CTL head phase  **Fig. 1-5-13** CTL head phase **Note:** ***Trigger the oscilloscope externally signal from TP411 (DRUM FF). Use (+) trigger for MH-2 alignment tape.*** ***This model uses wide heads.***	Control head phase See Fig. 1-5-12 PB FM: Main board TP206 FF: Main board TP411 Digital tracking off:	1) Play stairstep signal of MH-2 Alignment Tape and observe the FM waveform. Set for Digital tracking off by pressing the "∨ CH" and "∧ CH" buttons simultaneously in the playback mode. 2) Loosen screws ④ and⑤. Set the A/C head positioning tool on the A/C head adjusting boss as shown in Fig. 1-5-12. 3) Turn the tool first to position the A/C head fully toward the capstan. Then gradually return it toward the drum and stop at the position of maximum FM waveform output level as shown in Fig. 1-5-13. 4) Tighten screw ⑤ . Remove the tool and tighten screw ④.

No.	Item	Checkpoints	Adjustment and Checks
4	Tension arm assembly Tension band assembly  Tension arm tip (0 ± 0.5 mm) Chassis edge Adjust pin Fig. 1-5-14 Tension arm assy  Fig. 1-5-16 Cassette housing	Tension pole position See Fig. 1-5-14. (Symptom: poor FM waveform response)	 Fig. 1-5-15 Tension arm position 1) Remove video cassette tape and set for the playback mode as following steps. 2) Disconnect VCR from AC. Slightly rotates the loading motor counterclockwise by hand, then press the lock level portion Ⓐ of the cassette housing by hand as shown in Fig. 1-5-16. 3) Move the raised portion of the cassette housing slide plate to fully forward by hand with loading motor. At this time, again press the lock level portion Ⓑ of the cassette housing slide plate to lower the cassette housing (internal holder of the cassette housing is locked in lowered position). 4) Cover the cassette LED with opaque material (insulated tape with black). 5) Connect VCR to AC. Press the power button on the Front panel and set for the playback mode. 6) Turn the eccentric adjust pin to align the edge of the chassis with the tension arm tip as shown in Fig. 1-5-14.
		Back tension **(Symptom: skew)**	**1) When the tension pole position is correctly adjusted, the back tension will assume the correct value.** **2) Use the Back Tension Cassette Gauge and. set for the playback mode. Confirm reading** of 30 to 43. **3) Changing the tension pole position in order to vary the back tension will cause adverse effects elsewhere.**

No.	Item	Checkpoints	Adjustment and Checks
5	Pinch roller cam Control cam Half loading gear assembly Guide arm assembly  Spring Correct direction Pinch roller cam Guide arm assy Holes overlap each other. Holes overlap each other. Half loading gear assy Control cam **Fig. 1-5-16** Control/Pinch roller cam	Important: Do not remove or disturb parts other than those mentioned. See Fig. 1-5-16.	Set mechanism to Eject mode (internal holder of the cassette housing is locked in raised) position.  **Fig. 1-5-17** Control cam position 1) When installing the pinch roller cam, overlap the largest hole of the gear portion with the hole of the deck. 2) Set the control cam on the deck with the hole of the groove overlapped with the hole of the deck. Observe that the small hole of the control cam and the ridge of the pinch roller cam are aligned. (If the control cam does not fit readily, shift the rear plate assembly within the range of play.) 3) Install the half loading gear assembly with the hole overlapped with the hole of the deck. Secure with E-ring. 4) Install the guide assembly over the spring and with the hole overlapping that of the deck. Engage the spring correctly.
		Cassette housing assembly	Install the cassette housing assembly with the mechanism in the Eject mode. Also observe that the inner holder of the housing is raised and locked.
6	Clutch assembly	Take-up torque (Symptom: inadequate take-up torque)	1) Remove cassette housing and set for playback mode (see Section 1.2). 2) Set torque gauge on the take-up reel disk. Gradually relax your grip on the gauge and read the needle indication at the point the gauge begins to rotate with the disk. Confirm indication of 60 to 100.

No.	Item	Checkpoints	Adjustment and Checks
7	Take-up loading arm assembly Supply loading arm assembly Plate assembly		**Note:** • *Set mechanism to the Eject or Stop mode before removing these parts.* • *The flange of the plastic rivet securing the loading arm assembly and the pole base assembly can be damaged by attempting to remove it directly. Press the loading arm assembly firmly to prevent motion. Then use a narrow-shafted tool to press the rivet from the shaft end to remove it.*
		Mounting position alignment • Remove the tension arm assembly to facilitate operation. See Fig. 1-5-18.	1) Set the supply and take-up loading arm assemblies so that the holes of the gear portions are aligned, then secure to the pole base assemblies with rivets. 2) Shift the plate assembly and install with the holes of the upper and lower components overlapped.
		Slide switch See Fig. 1-5-18.	Be sure to engage the slide switch slider with the edge of the plate assembly.

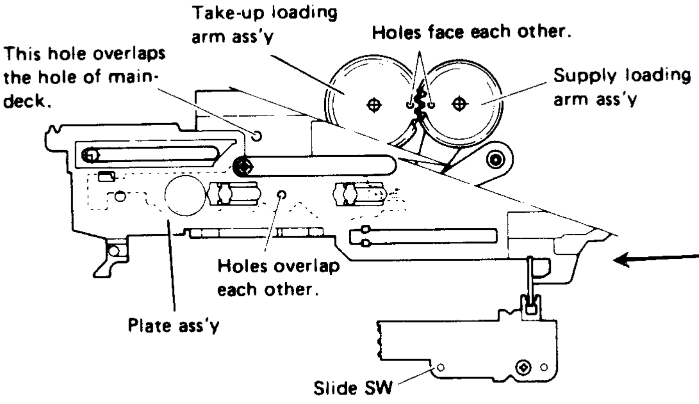

Take-up loading arm ass'y
Holes face each other.
This hole overlaps the hole of main-deck.
Supply loading arm ass'y
Holes overlap each other.
Plate ass'y
Slide SW

Fig. 1-5-18 Mounting position alignment

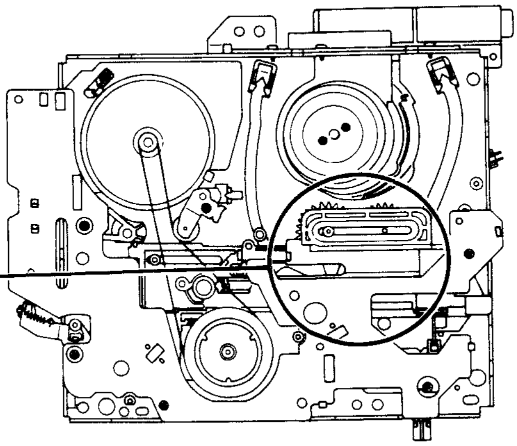


Fig. 1-5-19
T.S. Loading arm position

SECTION 2
ELECTRICAL ADJUSTMENTS

2.1 PREPARATION

Electrical adjustments are required after replacing circuit components and certain mechanical parts.
It is important to perform these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipment is available.

2.1.1 Required test equipment

1. Color television or monitor
2. Oscilloscope: wide-band, dual-trace, triggered delayed sweep
3. Frequency counter
4. Audio oscillator
5. Audio voltmeter
6. Digital voltmeter
7. Signal generator: RF/IF sweep/marker
8. Signal generator: PAL color bar, stairstep, video sweeper
9. Signal generator: Audio multiplex TV signal generator
10. Recording tape
11. Alignment tape: MH-2
12. Presetting unit: PTU94008.

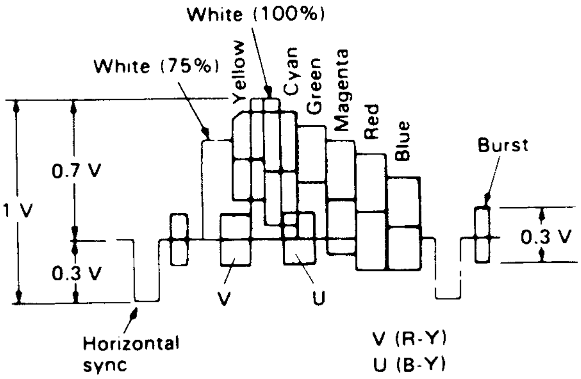

White (100%)
White (75%)
Yellow
Cyan
Green
Magenta
Red
Blue
Burst
0.7 V
1 V
0.3 V
0.3 V
V
U
Horizontal sync
V (R-Y)
U (B-Y)

Fig. 2-1-2 Color bar signal waveform

(75%) →

White	Yellow	Cyan	Green	Magenta	Red	Blue
V	U	White 100%			Black	

Fig. 2-1-3 Color bar pattern

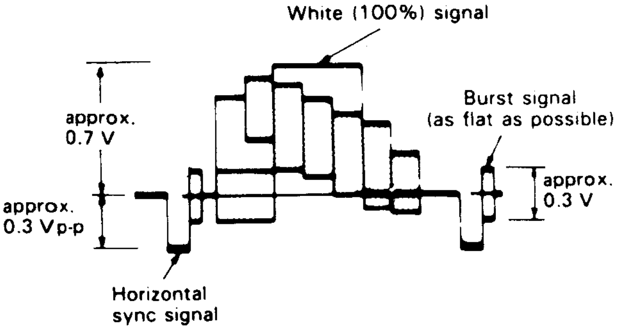

White (100%) signal
approx. 0.7 V
approx. 0.3 Vp-p
Burst signal (as flat as possible)
approx. 0.3 V
Horizontal sync signal

Fig. 2-1-1 Color bar signal of pattern generator

2.1.2 Check and adjustment steps

The check and adjustment steps are provided in the following in the form of charts. For clarity, the nomenclature used in the charts is outlined below.

No.	Checks and adjustments are numbered in the recommended sequence in which they are to be performed.
Item	Name assigned to the particular check and adjustment step.
Check Point	Location to which measuring instrument (oscilloscope unless otherwise noted) is to be connected.
Adjustment Parts	Variable component (resistor, capacitor, etc.) to be adjusted in this step. Dash (–) indicates check only.
Signal & Mode	• Input signal required to perform adjustment. Dash (–) indicates that special signal is not required. • Equipment operating mode at time of check or adjustment.
Color bars	Color bars signal as video input.
Stairstep	Stairstep signal as video input.
1 kHz	1 kHz sinewave as audio input signal.
MH-2 color bars	Color bars segment of MH-2 alignment tape.
MH-2 stairstep	Stairstep segment of MH-2 alignment tape.
MH-2 1 kHz	1 kHz audio signal segment of MH-2 alignment tape.
MH-2 RF sweep	RF sweep segment of MH-2 alignment tape.
E-E	Power on and machine in Stop mode.
REC	Recording mode
PB	Playback mode
SEARCH	Search (FWDS and REVS) playback mode
SLOW	Slow motion playback mode
STILL	Pause during playback mode
SP mode	SP recording speed
Description	This column provides an explanation of the step, notes and adjustment values, and reference to waveforms where applicable.

2.2 SWITCHING REGULATOR CIRCUIT

Note: *Unless otherwise specified, all test points and adjustments are located on the MAIN board.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	5V DC output voltage	• REC	• TUNER	•Q806-B •TP803 (GND)	•R811 (SWD 5V)	1) Connect a digital voltmeter between Q806-B and TP803. 2) Record in the TUNER mode, adjust R811 for 5.30±0.05 V.

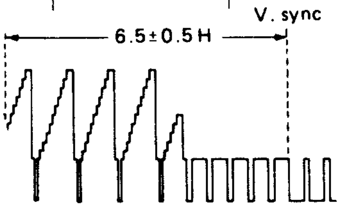
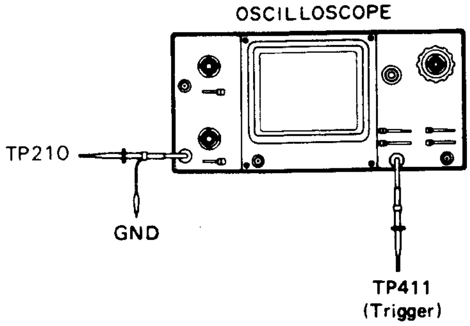
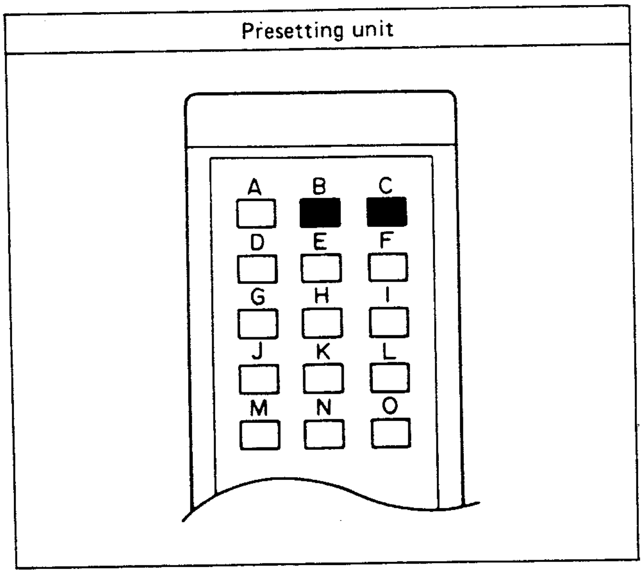
2.3 TIMER CIRCUIT

Note: *Unless otherwise specified, all test points and adjustments are located on the T/D/S board.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	Clock	• EE	• AUX	•IC1-16	•C6 (CLOCK)	**Note:** *For below adjustments use 10:1 probe with input capacitance lessthan 100 pf.* 1) Disconnect VCR from AC. Connect a frequency counter between IC1-16 and GND. 2) Short IC1-8 to GND, then short the leads of capacitor C3 once in order to reset IC1. 3) Connect VCR to AC. All FDP Segments are on. 4) Adjust C6 for 2048.000±0.002 Hz (488.2808 to 488.2818 μs).

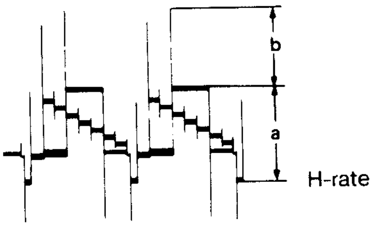
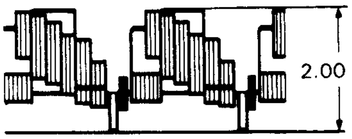
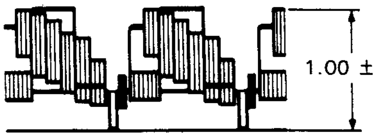
2.4 SERVO CIRCUIT

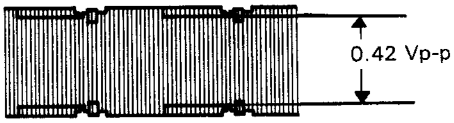
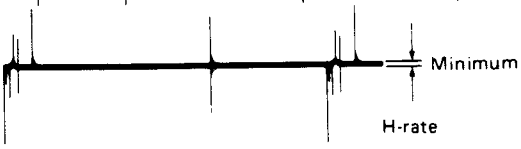
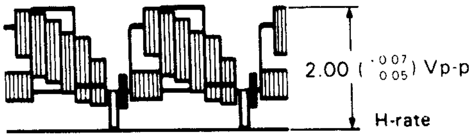
Note: *Unless otherwise specified, all test points and adjustments are located on the MAIN board.*

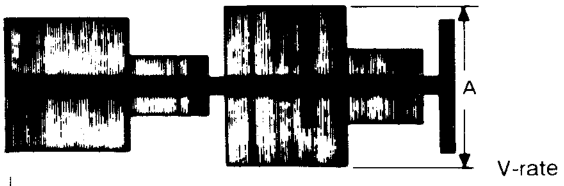
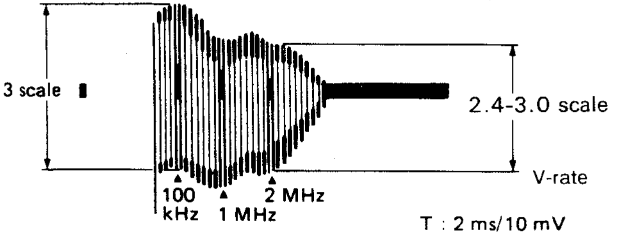
No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	SP PB switching point	• PB	• MH-2 stairstep • Trigger slope (−) • Auto tracking off  Fig. 2-4-1 PB switching point	•TP210	•R420 (PAL PB SW POINT)	1) Connect an oscilloscope to TP210. 2) Play back the stairstep segment of MH-2 alignment tape. 3) Trigger the oscilloscope externally (− slope) with the signal from TP411. 4) Adjust R420 to position the trigger point 6.5 ± 0.5 H from V. sync.  Fig. 2-4-2 oscilloscope
2	SP slow tracking preset	• REC then PB (slow)	•Tuner or colour bar  Presetting unit A B C D E F G H I J K L M N O **Note** : *Use only buttons "B" and "C".* *Depressing other buttons during adjustments may cause adjustmet errors.*	•TV monitor	•Presetting unit (PTU-94008)	1) Record a color signal in the SP mode. 2) Playback the recorded tape, in both forward and reverse slow modes on slow mode. Press the presetting unit "B" and "C" button to minimize noise bars during slow playback. 3) Set to stop mode and then return to slow mode. Confirm that noise bar is still minimum.

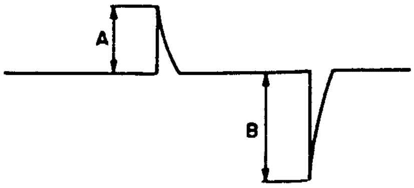
2.5 VIDEO CIRCUIT

Note: ***Unless otherwise specified, all test points and adjustments are located on the VIDEO unit board.***

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
IMPORTANT: Item 1,2,3 and 4 1. Ordinarily avoid performing these adjustments. It should be performed only if IC1 of the VIDEO UNIT board has been replaced. 2. To adjust, replace fixed resistor with variable resistor, then adjust as required.						
1	EE level & White clip	• EE	•Colour bar  a : b = 100 : 90 Fig. 2-5-1 White clip	•CN207-15 (Main board) •IC1-22	•R60 (EE Y LEVEL) •R64 (WHITE CLIP)	1) When IC1 of the VIDEO UNIT board is replaced, it may also be necessary to replace R60 and R64 with adjustable resistors. 2) Confirm 2.00 ($^{+0.07}_{0.05}$) Vp-p EE level at CN207-15 and white clip of 90±4% at IC1-22. If necessary, replace R60 with NVP1301-103NU and R64 with NVP1301-332NU. 3) Supply a colour bar signal to VIDEO IN, connect one channel of a dual trace oscilloscope to CN207-15 and the other channel to IC1-22. 4) Alternately adjust R60 and R64 for 2.00 ($^{+0.07}_{0.05}$) Vp-p at CN207-15 and white clip of 90±4% at IC1-22.  Fig. 2-5-2 EE Level
2	Carrier & Deviation	• EE	•AUX •No signal **IMPORTANT:** **Ordinarily avoid performing this adjustment. It should be performed only if IC1 of the VIDEO UNIT board has been replaced or if significant waveform distortion and S/N deterioration occur during recording and playback due to deficient adjustment of the carrier set and deviation.**	•CN206-9 (Main board)	•R41 (CARRIER)	1) When IC1 of the video unit board is replaced, it may also be necessary to replaced R41 and R42 with adjustable resistors. 2) Play back a colour bar segment of MH-2 and confirm 1.00 (±0.06) Vp-p Y level at VIDEO OUT (75Ω load). If necessary, replace R41 with NYVP1301-223NU and R42 with NVP1301-103NU. 3) Without an incoming signal. Terminate VIDEO OUT with TV-monitor (75Ω load), connect a frequency counter to CN206-9 on the MAIN board. 4) Adjust R41 for 3.80±0.04 MHz. 5) Play back a colour bar segment of MH-2, and confirm 1.00 (±0.06) Vp-p at VIDEO OUT. If necessary, redplace R17 with NVP1301-222NU.
		• REC then PB	•Colour bar •AUX  Fig. 2-5-3 Carrier and deviation	•TP210 Video out (Main board)	•R42 (DEVIATION)	6) Record and play back a colour bar signal. If necessary, before recording, adjust R42 so that the Y level becomes 1.00 (±0.06) Vp-p at VIDEO OUT during playback mode.

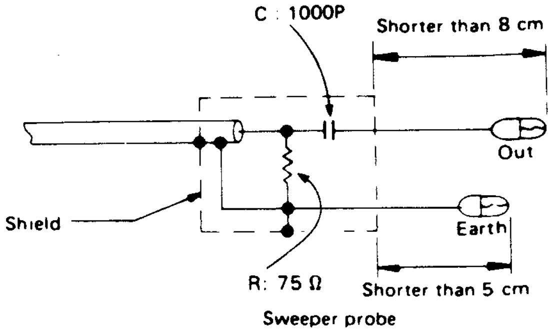
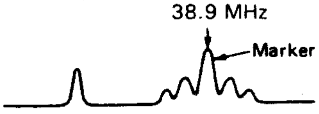
No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
3	REC FM level  **Fig. 2-5-4** REC FM level	•REC	•Colour bar	•TP3 (REC FM OUT) (Pre/rec board)	•R246 (REC FM)	1) Connect the oscilloscope to TP3 of the PRE/REC board. 2) Adjust R246 so that FM level of the pedestal portion is 0.42 Vp-p.
4	YNR NC balance  **Fig. 2-5-5** YNR NC balance	•EE	•Colour bar •AUX	•IC1-9	•R56 (NC BALANCE)	1) When IC1 of the video unit board is replaced, it may also be necessary to replace R56 with adjustable resistor. 2) Supply a colour bar signal to VIDEO IN, connect an oscilloscope to IC1-9 on the VIDEO UNIT board. 3) Confirm minimum DC step difference. If necessary, replace R56 with NVP1301-152NZ. 4) Adjust R56 for minimum DC step difference.
5	PB Y level  **Fig. 2-5-6** PB Y level	•REC then PB	•Colour bar •AUX	•CN207-15 (Main board)	•R17 (PB-Y LEVEL)	1) When IC1 of the video unit board is replaced, it may also be necessary to replace R17 with adjustable resistor. 2) Record and play back a colour bar signal, confirm 2.00 ($^{+0.07}_{0.05}$) Vp-p Y level at CN207-15. If necessary, replace R17 with NVP1301-222NU. 3) Connect oscilloscope to CN207-15. 4) Record and play back a colour bar signal, adjust R17 for 2.00 ($^{+0.07}_{0.05}$) Vp-p at CN207-15.

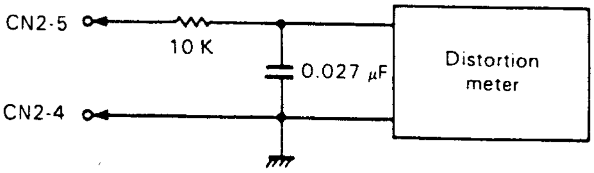
No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
6	REC colour level and Ch balance	• PB	• MH-2 colour bar • Auto tracking off	•IC1-41	•R229 (SP REC COLOR LEVEL) (Main board)	1) Connect an oscilloscope to IC1-41 and observe colour signal level. 2) Set the MH-2 alignment tape into the cassette housing, play back the colour bar segment of MH-2 alignment tape. 3) Set the tracking of the FRONT panel to the Auto tracking off position by simultaneously pressing the "+" and "−" tracking buttons. 4) Adjust by pressing the "+" and "−" tracking buttons of the Front panel for maximum level of the colour waveform and make a note of the higher colour level "A". 5) Press the STOP button on the FRONT panel and eject the MH-2 alignment tape.
		• REC then PB	 **Fig. 2-5-7** REC colour level			6) Set recording video cassette into the cassette housing. Supply a colour bar signal to VIDEO IN. 7) Trigger the oscilloscope externally with the signal from TP411 (DRUM FF) of the Main board. Use (−) trigger for CH1 and (+) triger for CH2. 8) Record a colour bar signal in the SP mode. 9) Play back recorded colour bar signal. Set the tracking of the FRONT panel to the Auto tracking off position by simultaneously pressing the "+" and "−" tracking buttons and confirm 85 ± 5% of the noted colour level at IC1-41. If necessary, before recording, adjust R229 so that the higher level channel becomes 85 ± 5% of the noted level "A" during playback as shown in Fig. 2-5-6. At this time, confirm that the channel level difference is within 3 dB. **Note**: ***Repeat the above step (9) several times.***
7	SP PB Frequency	• REC then PB	•Video sweep •Auto tracking off	•TP210 (Main board)	•R215 (SP PB FREQ RESPONSE) (Main board)	1) Terminate VIDEO OUT with monitor - TV (75 Ω load), supply a video sweep signal without burst to VIDEO IN. 2) Set recording video cassette into the cassette housing. Record a video sweep signal without burst in the SP mode. 3) Connect an oscilloscope to TP210. Play back recorded video sweep signal in the SP mode, set the tracking of the Front panel to the Auto tracking off position by simultaneously pressing the (+) and (−) tracking buttons. 4) Use the control of the oscilloscope to position the 100 kHz region at graduation 3 (0 dB) of the oscilloscope scale. 5) Adjust R215 to position the 2 MHz of channel-1 portion at 2.4 − 3.0 (− 1 ± 1 dB) of the oscilloscope graduations as shown in Fig. 2-5-8 At thie time, confirm that the channel difference is within 2 dB.
			 **Fig. 2-5-8** PB frequency			
			•TV broadcast •Auto tracking off	•TV monitor	•R215 (SP PB FREQ RESPONSE) (Main board)	**Alternate method** 1) Set recording video cassette into the cassette housing, receive a colour broadcast on a VHF channel. 2) Record a colour broadcast that shows a good depiction of human facial contours. 3 Play back recorded colour broadcast, set the tracking of the Front panel to the Auto tracking off position by simultaneously pressing the (+) and (−) tracking buttons. 4) Adjust R215 to obtain distinct facial features on the monitor. **Note:** ***R215 nearly at centre position.***

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
8	MESECAM DET	•EE	•SECAM colour bar	•TP244 (Main board)	•L202 (MESECHM DET) (Main board)	1) Apply video input SECAM color bar. 2) Connect an oscilloscope to TP244 3) Adjust L202so that A snd B are related as follows: A : B = 3 : 4  **Fig. 2-5-9** MESECAM DET

2.6 TUNER/IF CIRCUIT

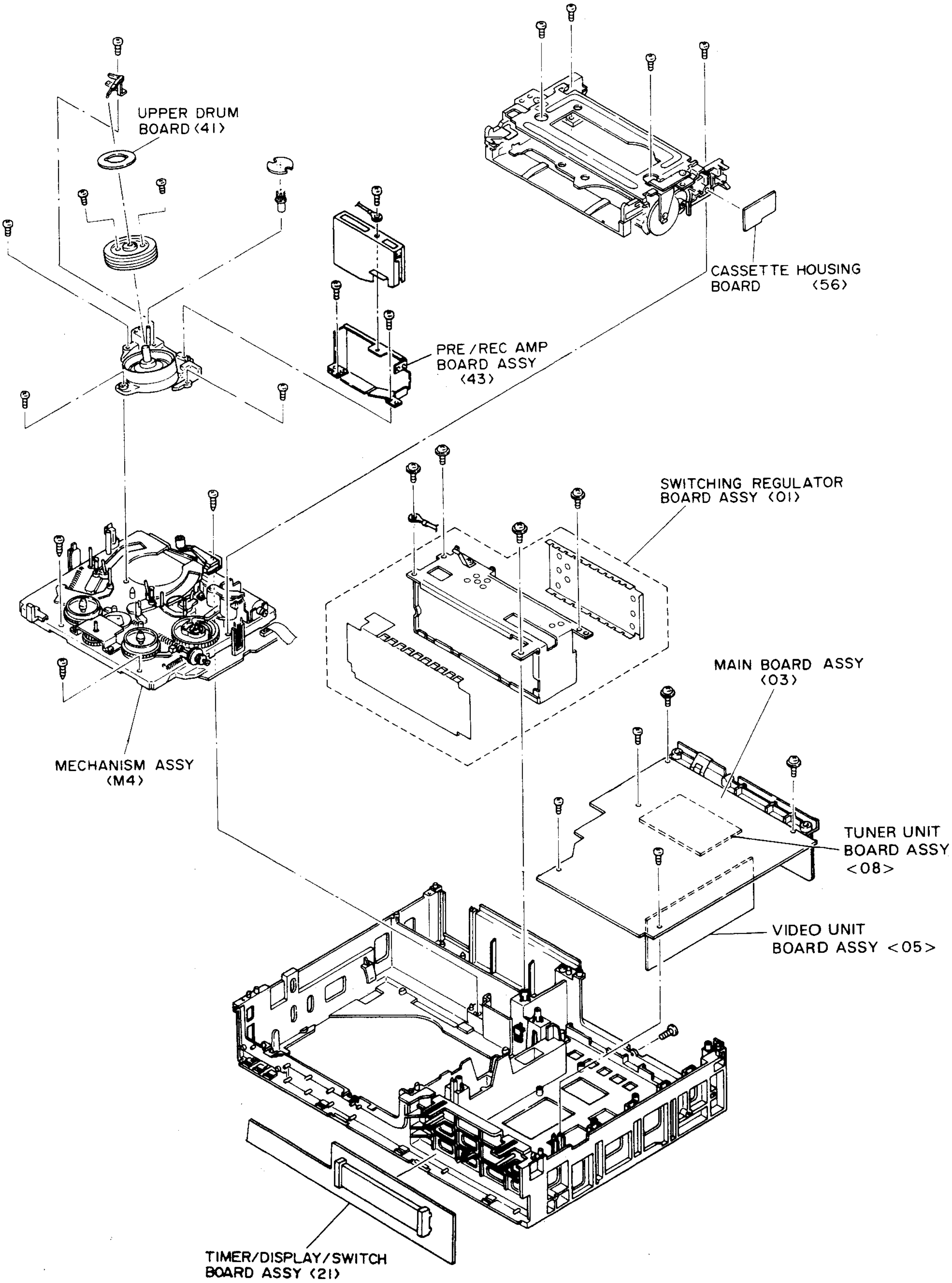
Note: *Unless otherwise specified, all test points and adjustments are located on the TUNER/IF board.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
Equipment required: 1. Oscilloscope 2. IF sweep signal generator with suitable markers (PIF, etc.) 3. Sweeper probe (sweep signal supply cable) as shown below.						 C : 1000P Shorter than 8 cm Out Shield Earth R: 75 Ω Shorter than 5 cm Sweeper probe **Fig. 2-7-1** Equipment required
1	VCO	• EE	•Tuner  **Fig. 2-7-2** VCO	•IC1-17	•T1 (VCO)	1) Use a sweeper probe as shown in Fig. 2-7-1 and connect the sweep generator output to pin 1 of SAW 1. Adjust the sweep gain so that the waveform does not distort as observed with the oscilloscope. Connect the oscilloscope to pin 17 of IC1 (VIDEO DET OUT) and adjust T1 to align the waveform with the frequency marker as shown in Fig. 2-7-2.
			•Tuner •TV broadcast	•TV monitor	•T1 (VCO)	**Alternate methjod:** 1) Receive a colour broadcast on a VHF-HI channel. 2) Adjust T1 to obtain a fine picture on the monitor.

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
• **Before the following adjustments:** 1. Connect a cable to ANT IN and terminate TV OUT at 75 Ω. 2. Set a TV channel signal generator as follows. Video: 65 dBμ/75 Ω, colour bar 87.5% modulation Audio: 55 dBμ/75 Ω, 1 kHz ± 50 kHz deviation						
2	RF AGC	• EE	• Tuner • TV broadcast	• TV monitor	• R72 (RF AGC)	1) Connect the oscilloscope to IF terminal of U/V Tuner (Front end). Adjust R72 for maximum level, then again adjust R72 for − 8 dB again. **Alternate method:** **Note:** ***Adjust R72 (RF AGC) to correct for excess noise in the picture or when streaky cross interference occurs due to strong electrical fields.*** 1) Adjust R72 to minimize noise or streaks on the TV monitor. 2) Check for absence of abnormality on all channels.
3	SOUND DET	• EE	• Tuner • TV broadcast  Fig. 2-7-3	• CN2-5	• T3 (FM DET)	1) Use a adjustment circuit as shown in Fig. 2-7-3, and connect a distortion meter as shown in Fig. 2-7-3. 2) Adjust T3 for minimum distortion (less than 2.0%). Alternate method: 1) Receive a colour broadcast on a VHF-HI channel (7 to 13). Connect an oscilloscope to CN2-5. 2) Adjust T3 for maximum level at audio sound.
4	AFC	• EE	• Tuner • TV broadcast • AFC SW off	IC1-14	• T2 (AFC)	1) Receive a colour broadcast. 2) With AFC SW to OFF, connect on oscilloscope to IC1-14 of the Tuner board. 3) Set the oscilloscope to DC mode and adjust T2 to set the lower edge of the ripple waveform to 5VDC.

SECTION 3
CHARTS AND DIAGRAMS

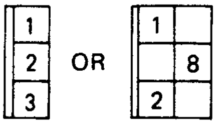
3.1 CIRCUIT BOARD AND LOCATION


UPPER DRUM BOARD <41>
CASSETTE HOUSING BOARD <56>
PRE/REC AMP BOARD ASSY <43>
SWITCHING REGULATOR BOARD ASSY <01>
MAIN BOARD ASSY <03>
MECHANISM ASSY <M4>
TUNER UNIT BOARD ASSY <08>
VIDEO UNIT BOARD ASSY <05>
TIMER/DISPLAY/SWITCH BOARD ASSY <21>

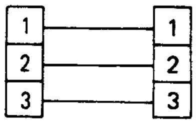
3.2 GENERAL INFORMATION

3.2.1 Connections

Note:
Unless otherwise specified, only signal input flow is indicated.
Connection arrows indicate only signal outputs.

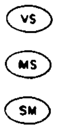


: Connectors



: Board in connectors

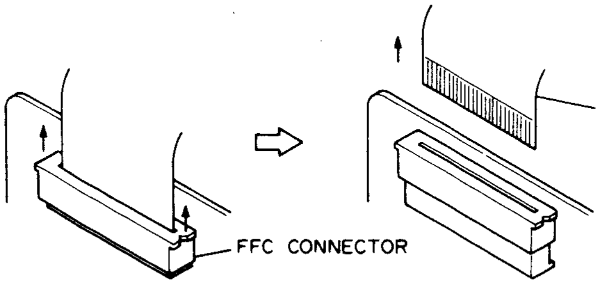
① OR ○
② ○
③ ○ : Direct connections



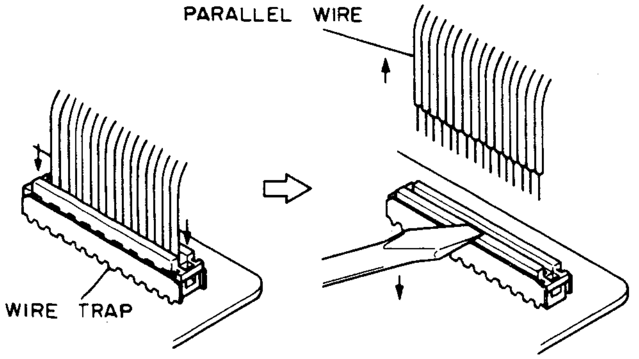
: Connected pattern in the board.
Abbreviations
V : Video M : Mechacon
S : Servo A : Audio
VS : Signal flow from video to servo.

3.2.2 Disconnecting the flatwire

1. Pull the connector structure upward to release the clamp when removing or inserting the flat wire cable.

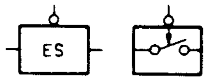


2. Depress the connector structure downward to release the clamp when removing or inserting the flat wire cable, as indicated below.

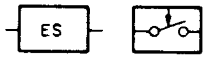


3.2.3 Indications

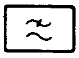
AUX : Active only at high.
$\overline{AUX}$: Active only at low.
$\bar{A}\bar{U}\bar{X}$: Active only at middle.
$\bar{A}U\bar{X}$: Active only at open.



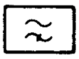
: Active only at low for electronic switch.



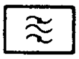
: Active only at high for electronic switch.



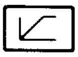
: Low pass filter.



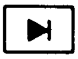
: High pass filter.



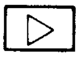
: Band pass filter.



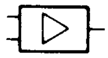
: Limiter.



: Detector



: Amplifier.

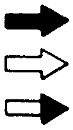


: Mixer stage.

3.2.4 Schematic diagram values

Unless otherwise specified.
1. All resistance values are in ohms, 1/6 W or 1/8 W (refer to parts list).
2. All capacitance values are in μF, (P; PF).
3. All inductance values are in μH, (m; mH).
4. All diodes are 1SS133 or MA165, (refer to parts list).
5. Voltages are DC-measured (reference to ground) with a digital voltmeter during recording (SP mode) and playback (SP mode) with alignment tape. Where voltages differ between recording and playback, the voltage during playback is shown in parenthesis.
6. Waveforms (VIDEO System) are measured (reference to ground) with a color bar during recording (SP mode) and playback (SP mode) with alignment tape.
7. Waveforms (AUDIO System) are measured (reference to ground) with 1 kHz (−8 dBs) during recording and playback with alignment tape (1 kHz).
8. Shaded (▓) parts are critical for safety.
Replace only with specified part numbers.

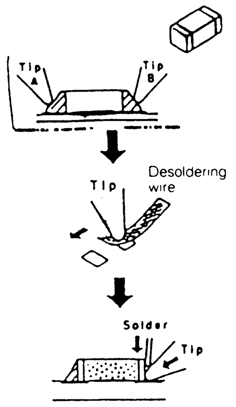
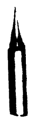
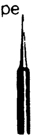
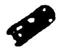
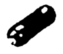
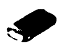
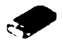
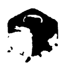
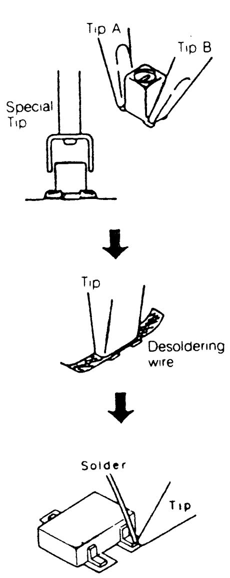
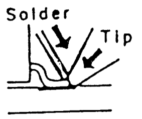
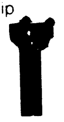
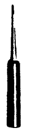
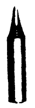
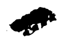
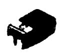
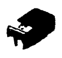
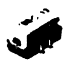
3.2.5 Signal flow in the schematic



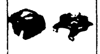
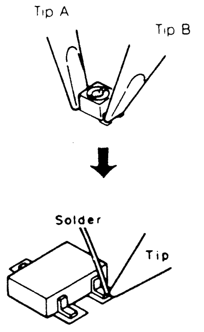
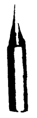
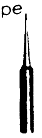
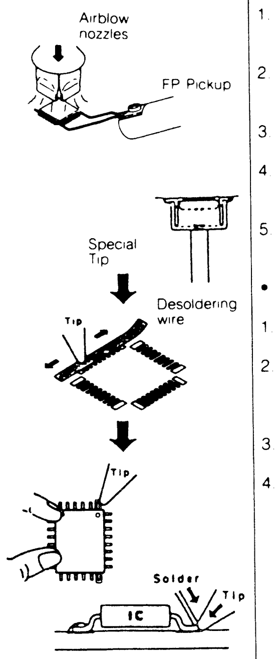
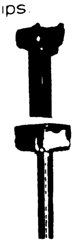
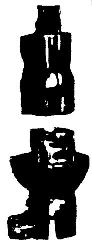
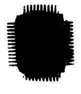
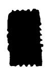
Recording signal path
Playback signal path
REC/PB signal path

3.2.6 Basic knowledge of SMC* parts replacement

Note: *For details, refer to "VIDEO SERVICE GUIDE" (VTS81001).*

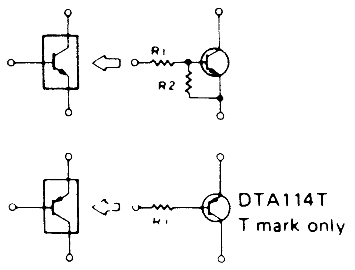
Products	Appearance	Replacement technology	Removal method	Installation method	Soldering tip types	Cautions
Thick Film Chip Resistors			• **Use 2 soldering irons** 1. Use thin tip soldering irons. 2. Use soldering tip temperature of about 280°C. 3. Simultaneously heat both ends of the part. 4. While heating, grasp the part with the tips of the soldering irons and remove it. 5. Use desoldering wire to completely remove the old solder from the part location of the board. 6. A clean pattern for installing the new part is very important.	1. Clean the area where the new part is to be moundted (use alcohol). 2. Apply flux. 3. Set part correctly into position, prevent it from shifting. 4. Bring the soldering iron tip close to the part contact without actually touching it. Melt thin (0.3 mm) solder between the tip and part so that it flows into the part contact. 5. Check work quality with a magnifier.	Thin tip type  Small flat-blade tip type 	Some parts can be damaged by sudden heating. Preheat the part at about 100°C for several minutes before installing it. Do not touch the part body with the soldering iron. The thin (0.3 mm) solder for miniature parts does not contain adequate flux. Supplementary flux is thus needed in most cases. Set the position carefully and secure the part. A defective trimming resistor cannot be adjusted externally. Replace with an ordinary variable resistor.
Carbon Film Chip Resitors						
Metal Film Chip Resistors						
Chip Ceramic Capacitors						
Chip Triming Resistors						
Chip Inductors		 Tip A Tip B Special Tip Tip Desoldering wire Solder Tip	• **Special desoldering iron** 1. Select soldering tip according to part size. 2. Bring the tip into contact with the soldered points. 3. When the solder melts, remove the part. 4. Remove the old solder with desoldering wire. • **2 soldering irons** 1. Use small flat-blade tips. 2. Heat both ends of the part simultaneously. 3. When the solder melts, grasp and remove the part with the soldering iron tips. 4. Remove the old solder with desoldering wire.	1. Clean the area where the new part is to be mounted (use alcohol). 2. Apply flux. 3. Set part correctly into position, prevent it from shifting. 4. Use sharp soldering iron tip. Bring close to the part contact without actually touching it. Melt thin solder between the tip and part so that it flows into the part contact.  5. Check work quality with a magnifier.	Special Soldering tip  Small flat-blade tip type  Thin tip type 	Use care not to damage plastic components when soldering. Position the part carefully. This will also affect the soldering operation. Use care regarding soldering iron tip and avoid rapidly heating parts. For larger parts, use a slightly higher temperature (about 300°C). Check after installing (cold solder joints, etc.). Use care not to damage the circuit pattern, especially when removing.
Chip Resistor Networks						
Chip Tantalum Capacitors						
Chip Tantalum Electrolytic Capacitors						
Chip Aluminum Electrolytic Capacitors						
Chip Transformers						
Chip Filters						

* SMC: Surface Mounted Component

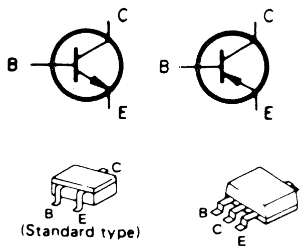
Products	Appearance	Replacement technology	Removal method	Installation method	Soldering tip types	Cautions
Chip VRs			• **2 soldering irons** 1. Use small flat-blade tips. 2. Heat the leads of the part simultaneously. 3. When the solder melts, grasp and remove the part with the soldering iron tips. 4. Remove the old solder with desoldering wire.	1. Clean the area where the new part is to be moundted (use alcohol). 2. Apply flux. 3. Set part correctly into position, prevent it from shifting. 4. Use sharp soldering iron tip. Bring close to the part contact without actually touching it. Melt thin solder between the tip and part so that it flows into the part contact.	Thin tip type  Small flat-blade tip type 	Use care not to damage the part when soldering. Check for solder joints, expecially miniature parts with small leads.
Chip Trimmer Capacitors						
Diodes						
Transistors						
IC (SOP) (Small Outline Package)		 Airblow nozzles FP Pickup Special Tip Desoldering wire Tip Tip Solder Tip IC	• **Special desoldering iron** 1. Select the tip according to the size and shape of the IC. 2. "Tin" the tip with a small amount of solder. 3. Set the tip squarely over the IC leads. 4. When the solder melts, carefully twist the iron. 5. Raise and remove the IC. • **Shaped airblower unit** 1. Select the correct nozzle. 2. Select the temperature and airblow (suggested: temp. 7, airblow 4). 3. Engage the IC removing tool. 4. Use the airblow to preheat the IC for about 5 seconds, then heat with the nozzle until the IC remover lifts the part from the board.	1. Use desoldering wire to remove the previous solder. 2. Clean the location with alcohol 3. Apply flux. 4. Position the IC and solder two pins at opposite sides. 5. Use a sharp tipped soldering iron and carefully solder each pin. (After gaining experience, a thicker tip can be used for better work efficiency.) 6. Remove any solder bridges with desoldering wire. 7. Inspect the work with a magnifier.	Special soldering tips.  Airblow nozzles 	Do not reuse removed parts. Use care to avoid solder bridges. Remove any that occurs. Remove the old IC carefully so as not to damage the circuit pattern. Because of the many pins, cleanliness of the pattern is extremely important after removing the IC. Be very precise in positioning the IC. Soldering opposite pins first holds the IC in place and makes soldering the other pins easier. It is important to inspect the work with a magnifier. ICs (especially TSOP) are easily damaged by heat. Do not touch directly with the soldering iron.
IC (SSOP) (Shrink Small Outline Package)						
IC (VSOP) (Very Small Outline Package)						
IC (QFP) (Quad Flat Package)						
IC (VQFP) (Very Small Quad Flat Package)						
IC (PLCC) (Plastic Leaded Chip Carrier)						
IC (TSOP) (Thin Small Outline Package)						

3.2.7 Semiconductors

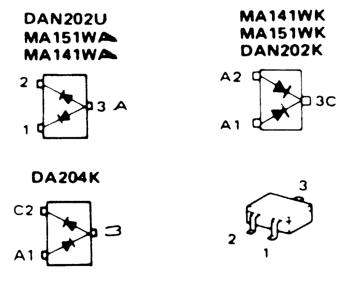
1. Digital transistor



2. Chip transistor



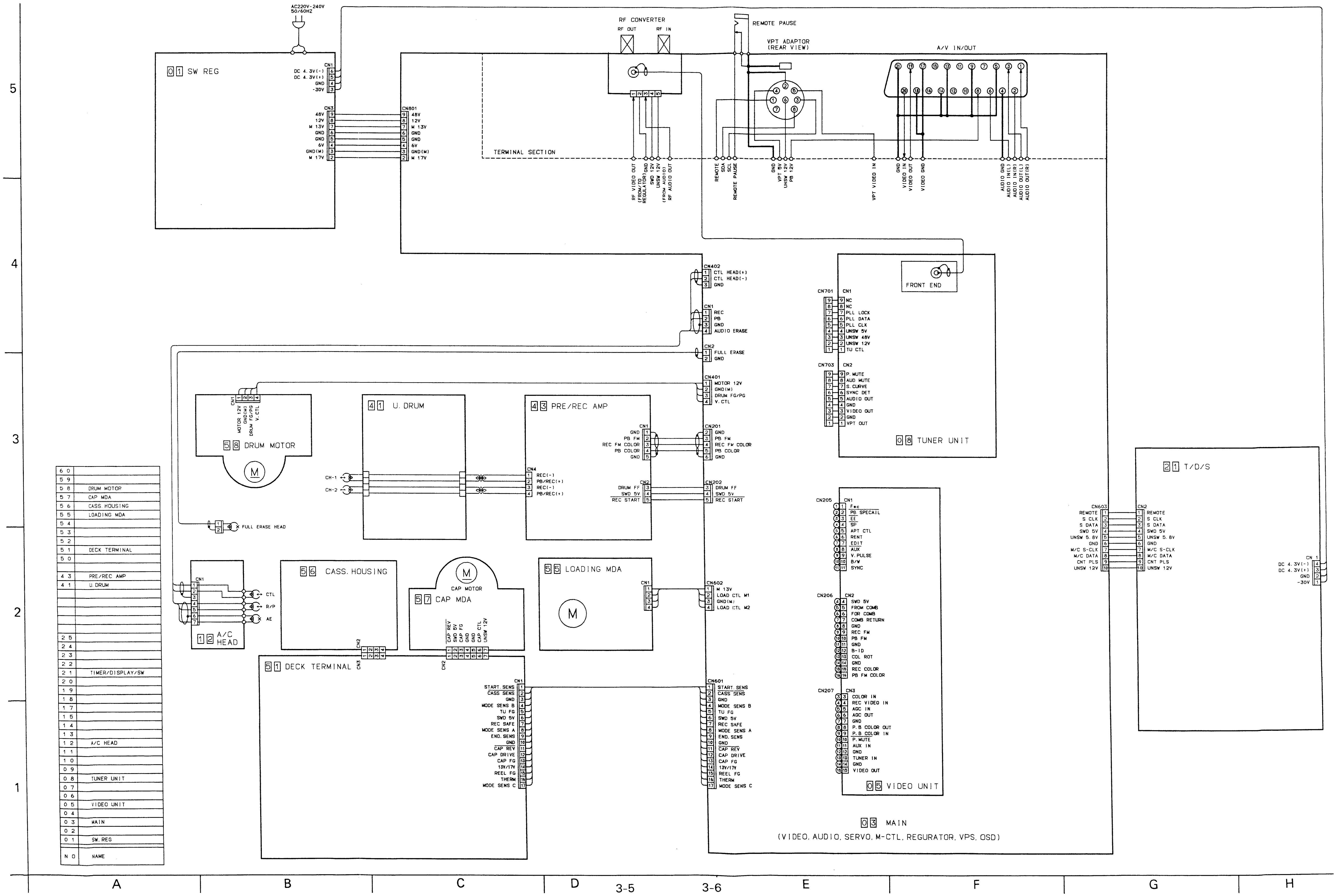
3. Chip diode



Note: The digital transistor includes built in resistors. It features small size and high reliability. Both PNP and NPN types are available.

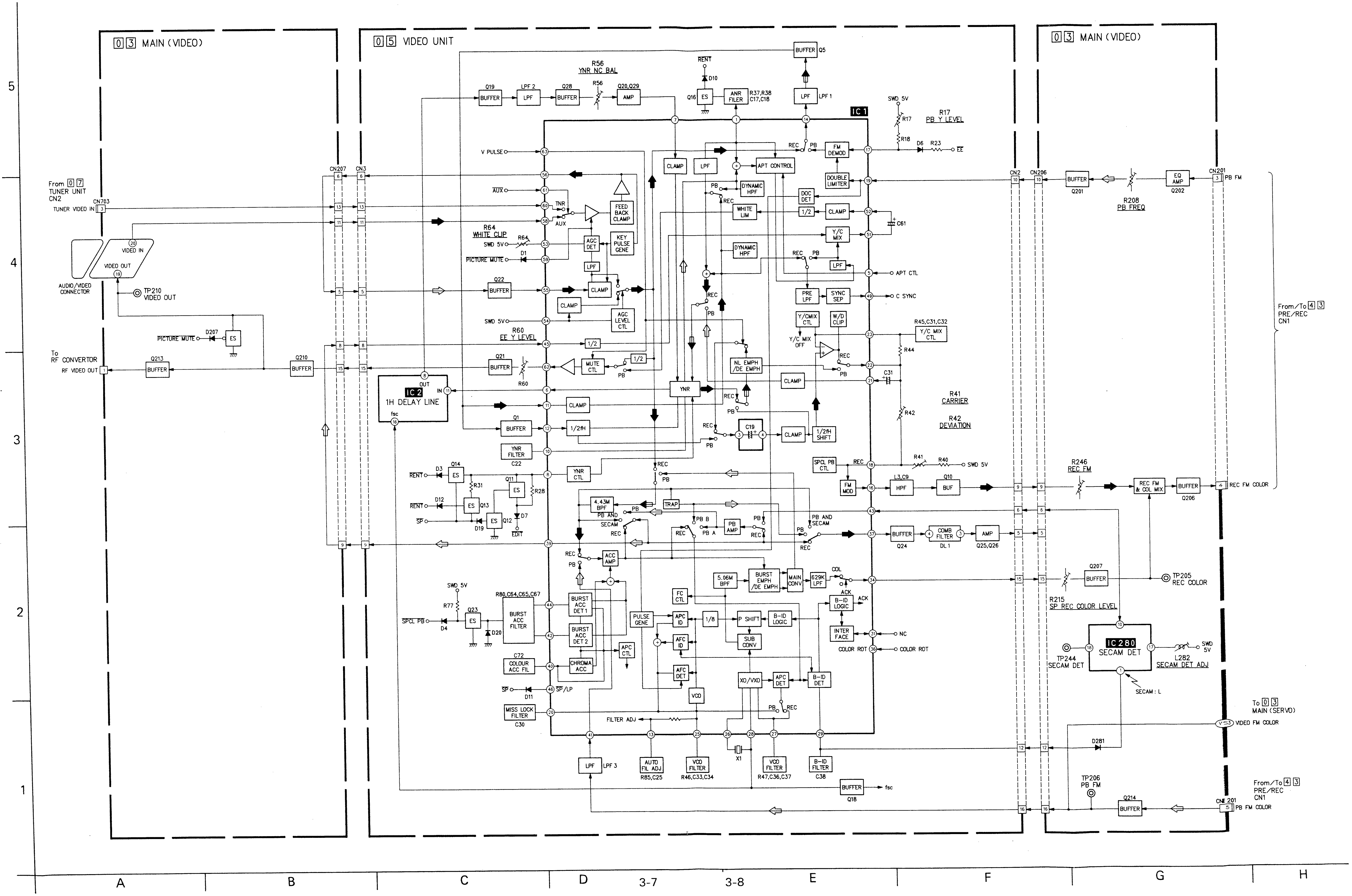
Uses: Inverter, interface, driver circuits.

3.3 BOARD INTERCONNECTIONS


AC220V-240V 50/60HZ
01 SW REG
CN1
DC 4.3V(-) 6
DC 4.3V(+) 5
GND 4
-30V 3
CN3
48V 9
12V 8
M 13V 7
GND 6
GND 5
6V 4
GND(M) 3
M 17V 2
CN801
9 48V
8 12V
7 M 13V
6 GND
5 GND
4 6V
3 GND(M)
2 M 17V
TERMINAL SECTION
RF CONVERTER
RF OUT
RF IN
RF VIDEO OUT
(FROM/TO REGULATOR) GND
SWD 12V
UNSW 12V
(FROM AUDIO) RF AUDIO OUT
REMOTE PAUSE
VPT ADAPTOR (REAR VIEW)
REMOTE
SDA
SCL
REMOTE PAUSE
GND
VPT 5V
UNSW 12V
PB 12V
VPT VIDEO IN
A/V IN/OUT
GND
VIDEO IN
VIDEO OUT
VIDEO GND
AUDIO GND
AUDIO IN(L)
AUDIO IN(R)
AUDIO OUT(L)
AUDIO OUT(R)
CN402
1 CTL HEAD(+)
2 CTL HEAD(-)
3 GND
CN1
1 REC
2 PB
3 GND
4 AUDIO ERASE
CN2
1 FULL ERASE
2 GND
CN401
1 MOTOR 12V
2 GND(M)
3 DRUM FG/PG
4 V.CTL
CN201
2 GND
3 PB FM
4 REC FM COLOR
5 PB COLOR
6 GND
CN202
3 DRUM FF
4 SWD 5V
5 REC START
CN602
1 M 13V
2 LOAD CTL M1
3 GND(M)
4 LOAD CTL M2
CN601
1 START.SENS
2 CASS SENS
3 GND
4 MODE SENS B
5 TU FG
6 SWD 5V
7 REC SAFE
8 MODE SENS A
9 END.SENS
10 GND
11 CAP REV
12 CAP DRIVE
13 CAP FG
14 13V/17V
15 REEL FG
16 THERM
17 MODE SENS C
FRONT END
CN701
CN1
9 NC
8 NC
7 PLL LOCK
6 PLL DATA
5 PLL CLK
4 UNSW 5V
3 UNSW 48V
2 UNSW 12V
1 TU CTL
CN703
CN2
9 P.MUTE
8 AUD MUTE
7 S.CURVE
6 SYNC DET
5 AUDIO OUT
4 GND
3 VIDEO OUT
2 GND
1 VPT OUT
08 TUNER UNIT
CN205
CN1
1 Fsc
2 PB SPECAIL
3 EE
4 SP
5 APT CTL
6 RENT
7 EDIT
8 AUX
9 V.PULSE
10 B/W
11 SYNC
CN206
CN2
4 SWD 5V
5 FROM COMB
6 FOR COMB
7 COMB RETURN
8 GND
9 REC FM
10 PB FM
11 GND
12 B-ID
13 COL ROT
14 GND
15 REC COLOR
16 PB FM COLOR
CN207
CN3
3 COLOR IN
4 REC VIDEO IN
5 AGC IN
6 AGC OUT
7 GND
8 P.B COLOR OUT
9 P.B COLOR IN
10 P.MUTE
11 AUX IN
12 GND
13 TUNER IN
14 GND
15 VIDEO OUT
05 VIDEO UNIT
03 MAIN
(VIDEO, AUDIO, SERVO, M-CTL, REGURATOR, VPS, OSD)
CN603
REMOTE 1
S CLK 2
S DATA 3
SWD 5V 4
UNSW 5.8V 5
GND 6
M/C S-CLK 7
M/C DATA 8
CNT PLS 9
UNSW 12V 10
21 T/D/S
CN2
1 REMOTE
2 S CLK
3 S DATA
4 SWD 5V
5 UNSW 5.8V
6 GND
7 M/C S-CLK
8 M/C DATA
9 CNT PLS
10 UNSW 12V
CN 1
DC 4.3V(-) 4
DC 4.3V(+) 3
GND 2
-30V 1
CN1
MOTOR 12V
GND(M)
DRUM FG/PG
V.CTL
58 DRUM MOTOR
M
41 U.DRUM
CH-1
CH-2
43 PRE/REC AMP
CN1
GND 1
PB FM 2
REC FM COLOR 3
PB COLOR 4
GND 5
CN4
1 REC(-)
2 PB/REC(+)
3 REC(-)
4 PB/REC(+)
CN2
DRUM FF 3
SWD 5V 4
REC START 5
FULL ERASE HEAD
CN1
CTL
R/P
AE
12 A/C HEAD
56 CASS. HOUSING
CN2
CN3
M
CAP MOTOR
57 CAP MDA
CAP REV
SWD 5V
CAP FG
GND
GND
CAP CTL
UNSW 12V
CN2
55 LOADING MDA
CN1
M
51 DECK TERMINAL
CN1
START.SENS 1
CASS SENS 2
GND 3
MODE SENS B 4
TU FG 5
SWD 5V 6
REC SAFE 7
MODE SENS A 8
END.SENS 9
GND 10
CAP REV 11
CAP DRIVE 12
CAP FG 13
13V/17V 14
REEL FG 15
THERM 16
MODE SENS C 17
5
4
3
2
1
A
B
C
D
E
F
G
H

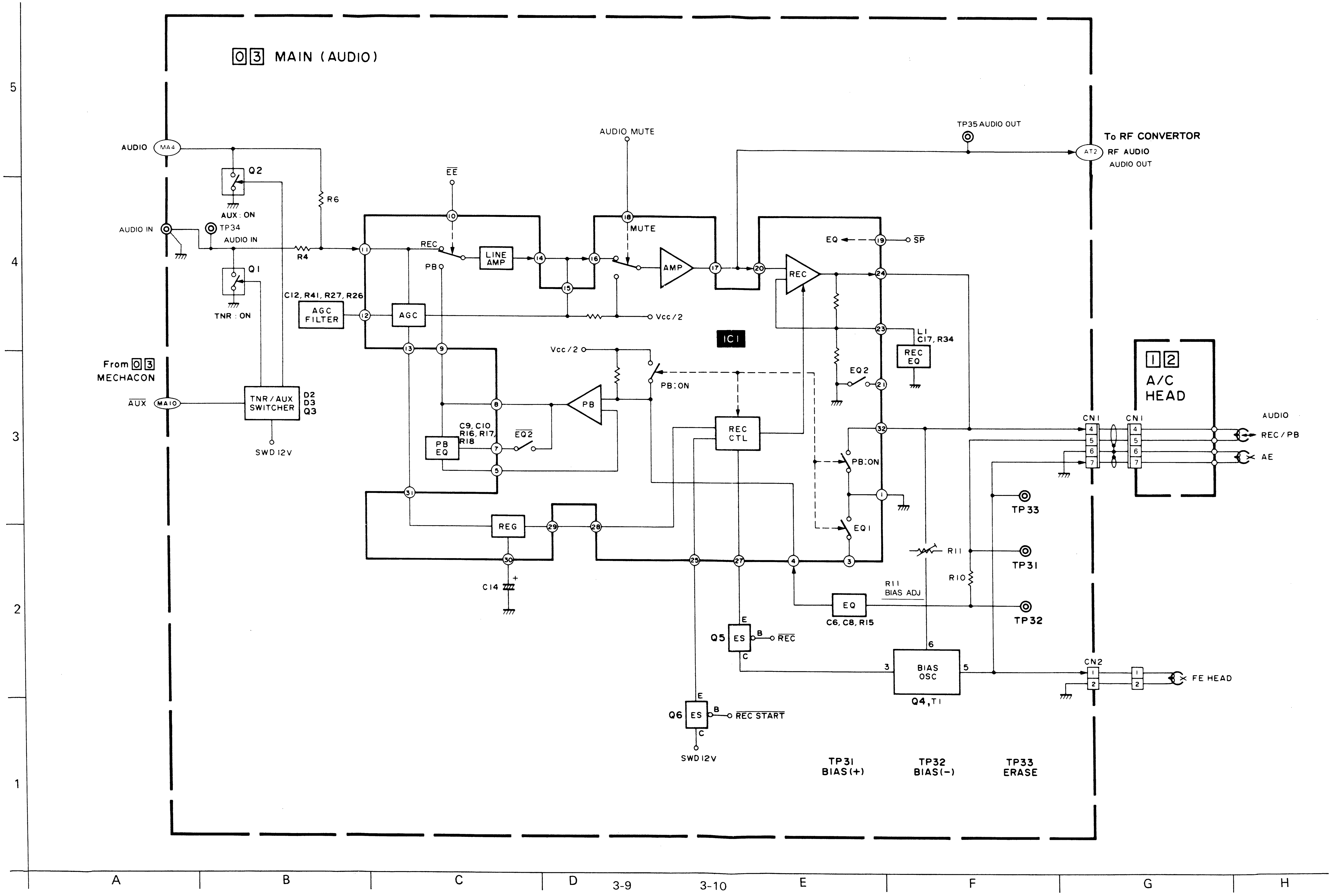
N O	NAME
6 0	
5 9	
5 8	DRUM MOTOR
5 7	CAP MDA
5 6	CASS. HOUSING
5 5	LOADING MDA
5 4	
5 3	
5 2	
5 1	DECK TERMINAL
5 0	
4 3	PRE/REC AMP
4 1	U. DRUM
2 5	
2 4	
2 3	
2 2	
2 1	TIMER/DISPLAY/SW
2 0	
1 9	
1 8	
1 7	
1 5	
1 4	
1 3	
1 2	A/C HEAD
1 1	
1 0	
0 9	
0 8	TUNER UNIT
0 7	
0 6	
0 5	VIDEO UNIT
0 4	
0 3	MAIN
0 2	
0 1	SW. REG

3.4 VIDEO BLOCK DIAGRAM



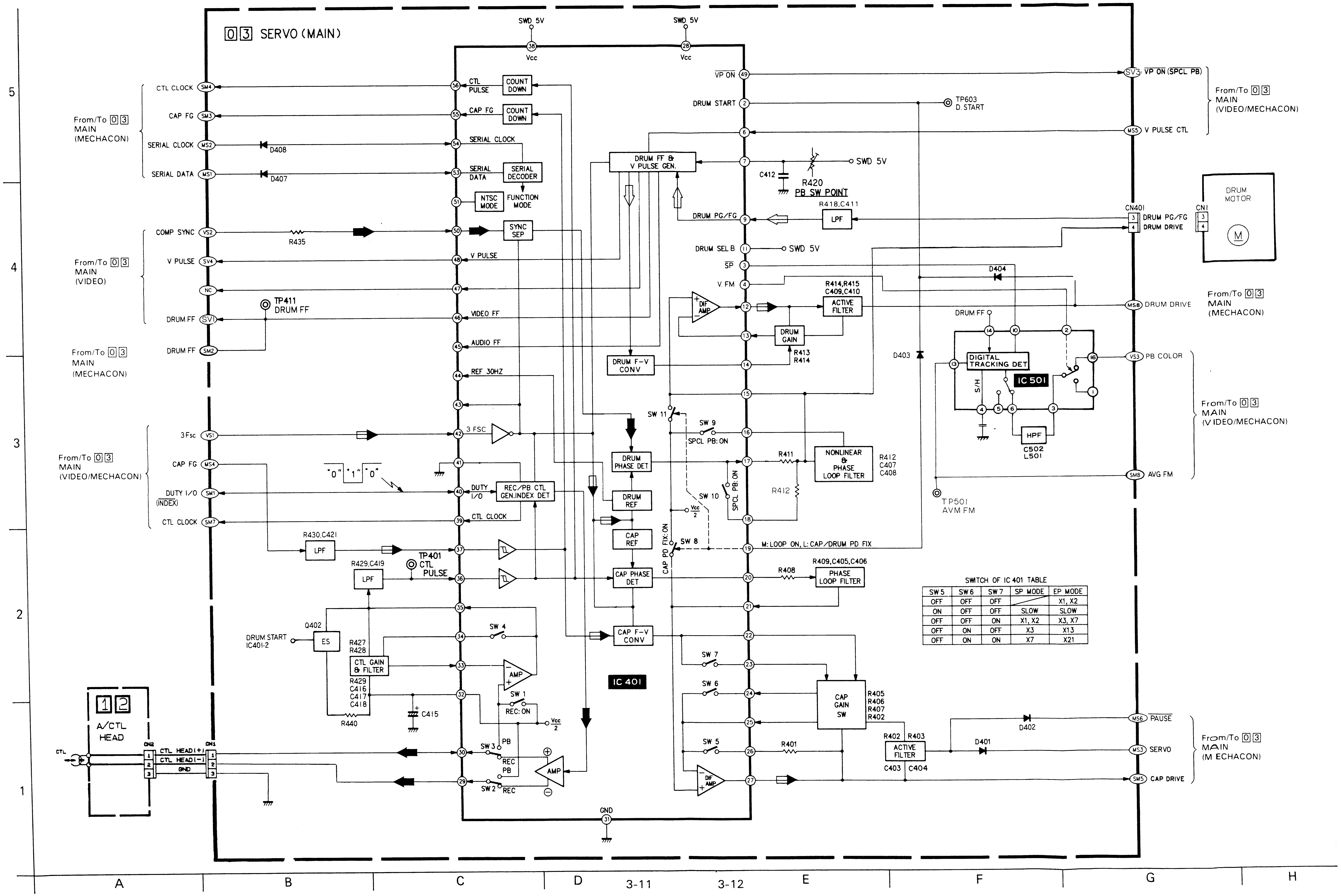
03 MAIN (VIDEO)
05 VIDEO UNIT
03 MAIN (VIDEO)
IC1
IC2 1H DELAY LINE
IC280 SECAM DET
From 07 TUNER UNIT CN2
TUNER VIDEO IN
CN703
AUDIO/VIDEO CONNECTOR
VIDEO IN
VIDEO OUT
TP210 VIDEO OUT
PICTURE MUTE
D207
ES
To RF CONVERTOR
RF VIDEO OUT
Q213 BUFFER
Q210 BUFFER
CN207
CN3
R56 YNR NC BAL
Q19 BUFFER
LPF 2 LPF
Q28 BUFFER
Q20,Q29 AMP
RENT
D10
Q16 ES
ANR FILER
R37,R38 C17,C18
BUFFER Q5
LPF LPF 1
V PULSE
AUX
TNR
R64 WHITE CLIP
SWD 5V
D1
PICTURE MUTE
FEED BACK CLAMP
KEY PULSE GENE
AGC DET
Q22 BUFFER
CLAMP
AGC LEVEL CTL
R60 EE Y LEVEL
Q21 BUFFER
MUTE CTL
1/2
Q1 BUFFER
1/2fH
YNR FILTER C22
YNR CTL
YNR
D3
Q14
R31
Q11
R28
D12
Q13
Q12
D7
D19
EDIT
SP
4.43M BPF
PB AND SECAM
TRAP
PB AMP
PB A
PB B
ACC AMP
SWD 5V
R77
Q23
D4
D20
SPCL PB
R80,C64,C65,C67
BURST ACC FILTER
BURST ACC DET 1
BURST ACC DET 2
C72 COLOUR ACC FIL
CHROMA ACC
SP/LP
D11
MISS LOCK FILTER C30
APC CTL
PULSE GENE
APC ID
AFC ID
AFC DET
FC CTL
1/8
P SHIFT
B-ID LOGIC
SUB CONV
VCO
XO/VXO
APC DET
B-ID DET
5.06M BPF
BURST EMPH /DE EMPH
MAIN CONV
629K LPF
COL
ACK
INTER FACE
NC
COLOR ROT
FILTER ADJ
LPF LPF 3
AUTO FIL ADJ R85,C25
VCO FILTER R46,C33,C34
X1
VCO FILTER R47,C36,C37
B-ID FILTER C38
BUFFER Q18
fsc
CLAMP
LPF
APT CONTROL
FM DEMOD
DOUBLE LIMITER
DYNAMIC HPF
DOC DET
WHITE LIM
1/2
Y/C MIX
C61
APT CTL
PRE LPF
SYNC SEP
C SYNC
Y/CMIX CTL
Y/C MIX OFF
W/D CLIP
R45,C31,C32 Y/C MIX CTL
R44
NL EMPH /DE EMPH
C31
R41 CARRIER
R42 DEVIATION
C19
1/2fH SHIFT
SPCL PB CTL
R41
R40
SWD 5V
FM MOD
L3,C9 HPF
Q10 BUF
BUFFER Q24
COMB FILTER DL1
AMP Q25,Q26
REC
PB
SWD 5V
R17 PB Y LEVEL
R18
D6
R23
EE
CN2
CN206
CN201
BUFFER Q201
R208 PB FREQ
EQ AMP Q202
PB FM
From/To 43 PRE/REC CN1
R246 REC FM
REC FM & COL MIX
BUFFER Q206
REC FM COLOR
Q207 BUFFER
TP205 REC COLOR
R215 SP REC COLOR LEVEL
TP244 SECAM DET
L282 SECAM DET ADJ
SECAM : L
To 03 MAIN (SERVO)
VIDEO FM COLOR
D281
TP206 PB FM
Q214 BUFFER
From/To 43 PRE/REC CN1
PB FM COLOR
A
B
C
D
E
F
G
H
1
2
3
4
5

3.5 AUDIO BLOCK DIAGRAM



03 MAIN (AUDIO)
AUDIO
MA4
Q2
R6
AUX : ON
AUDIO IN
TP34
AUDIO IN
R4
Q1
TNR : ON
From 03
MECHACON
AUX
MA10
TNR / AUX
SWITCHER
D2
D3
Q3
SWD 12V
C12, R41, R27, R26
AGC
FILTER
AGC
EE
REC
PB
LINE
AMP
AUDIO MUTE
MUTE
AMP
Vcc/2
IC1
Vcc/2
PB:ON
PB
C9, C10
R16, R17,
R18
EQ2
PB
EQ
REC
CTL
REG
C14
TP35 AUDIO OUT
To RF CONVERTOR
AT2
RF AUDIO
AUDIO OUT
EQ
SP
REC
L1
C17, R34
REC
EQ
EQ2
PB:ON
EQ1
R11
R10
R11
BIAS ADJ
EQ
C6, C8, R15
TP33
TP31
TP32
Q5
ES
E
B
C
REC
Q6
ES
E
B
C
REC START
SWD 12V
BIAS
OSC
Q4, T1
3
5
6
12
A/C
HEAD
CN1
CN1
AUDIO
REC / PB
AE
CN2
FE HEAD
TP31
BIAS(+)
TP32
BIAS(−)
TP33
ERASE
1
2
3
4
5
A
B
C
D
E
F
G
H

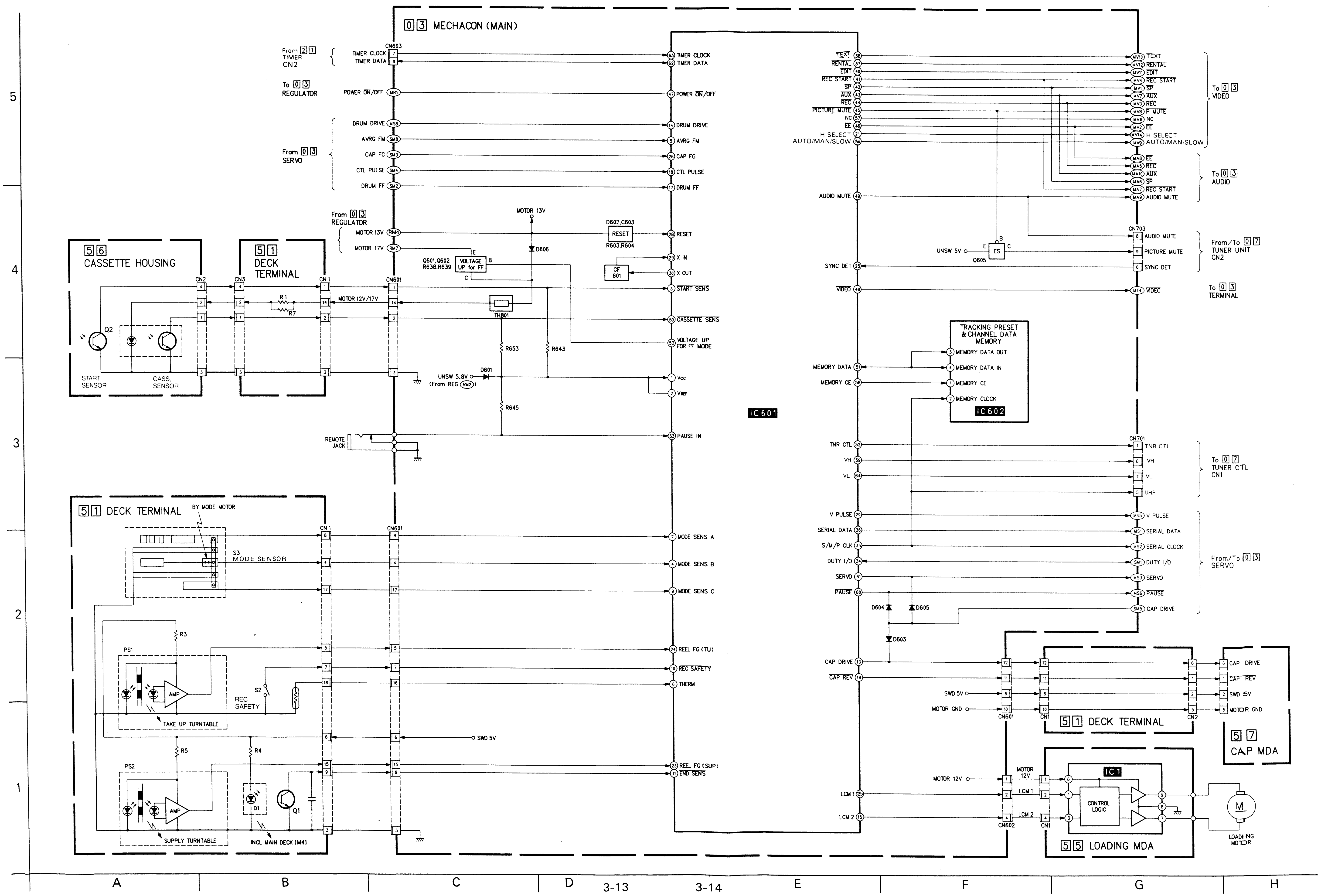
3.6 SERVO BLOCK DIAGRAM


03 SERVO (MAIN)
SWD 5V
SWD 5V
Vcc
Vcc
IC 401
IC 501
CTL CLOCK
CAP FG
SERIAL CLOCK
SERIAL DATA
From/To 03 MAIN (MECHACON)
D408
D407
CTL PULSE
COUNT DOWN
CAP FG
COUNT DOWN
SERIAL CLOCK
SERIAL DATA
SERIAL DECODER
NTSC MODE
FUNCTION MODE
COMP SYNC
R435
SYNC SEP
From/To 03 MAIN (VIDEO)
V PULSE
NC
DRUM FF
TP411 DRUM FF
V PULSE
VIDEO FF
AUDIO FF
From/To 03 MAIN (MECHACON)
DRUM FF
REF 30HZ
3Fsc
3 FSC
From/To 03 MAIN (VIDEO/MECHACON)
CAP FG
DUTY I/O (INDEX)
CTL CLOCK
"0" "1" "0"
DUTY I/O
REC/PB CTL GEN.INDEX DET
CTL CLOCK
R430,C421
LPF
R429,C419
LPF
TP401 CTL PULSE
DRUM START IC401-2
Q402
ES
R427 R428
CTL GAIN & FILTER
R429 C416 C417 C418
R440
C415
SW 4
AMP
SW 1
REC: ON
Vcc/2
SW 3
PB
REC
PB
SW 2
REC
AMP
12 A/CTL HEAD
CTL
CN2
CN1
CTL HEAD (+)
CTL HEAD (−)
GND
GND
VP ON
DRUM START
DRUM FF & V PULSE GEN.
C412
R420 PB SW POINT
SWD 5V
TP603 D. START
R418,C411
LPF
DRUM PG/FG
DRUM SEL B
SWD 5V
SP
V. FM
DIF AMP
R414,R415 C409,C410
ACTIVE FILTER
DRUM GAIN
R413 R414
DRUM F-V CONV
SW 11
SW 9
SPCL PB: ON
DRUM PHASE DET
R411
NONLINEAR & PHASE LOOP FILTER
R412 C407 C408
R412
SW 10
SPCL PB: ON
DRUM REF
Vcc/2
CAP REF
SW 8
CAP PD FIX: ON
M: LOOP ON, L: CAP/DRUM PD FIX
CAP PHASE DET
R408
R409,C405,C406
PHASE LOOP FILTER
CAP F-V CONV
SW 7
SW 6
SW 5
CAP GAIN SW
R405 R406 R407 R402
R401
DIF AMP
R402 R403
ACTIVE FILTER
C403 C404
D402
D401
D403
D404
VP ON (SPCL PB)
V PULSE CTL
From/To 03 MAIN (VIDEO/MECHACON)
CN401
CN1
DRUM PG/FG
DRUM DRIVE
DRUM MOTOR
M
DRUM DRIVE
From/To 03 MAIN (MECHACON)
DRUM FF
DIGITAL TRACKING DET
S/H
HPF
C502 L501
PB COLOR
From/To 03 MAIN (VIDEO/MECHACON)
AVG FM
TP501 AVM FM
PAUSE
SERVO
CAP DRIVE
From/To 03 MAIN (MECHACON)
A
B
C
D
E
F
G
H
1
2
3
4
5

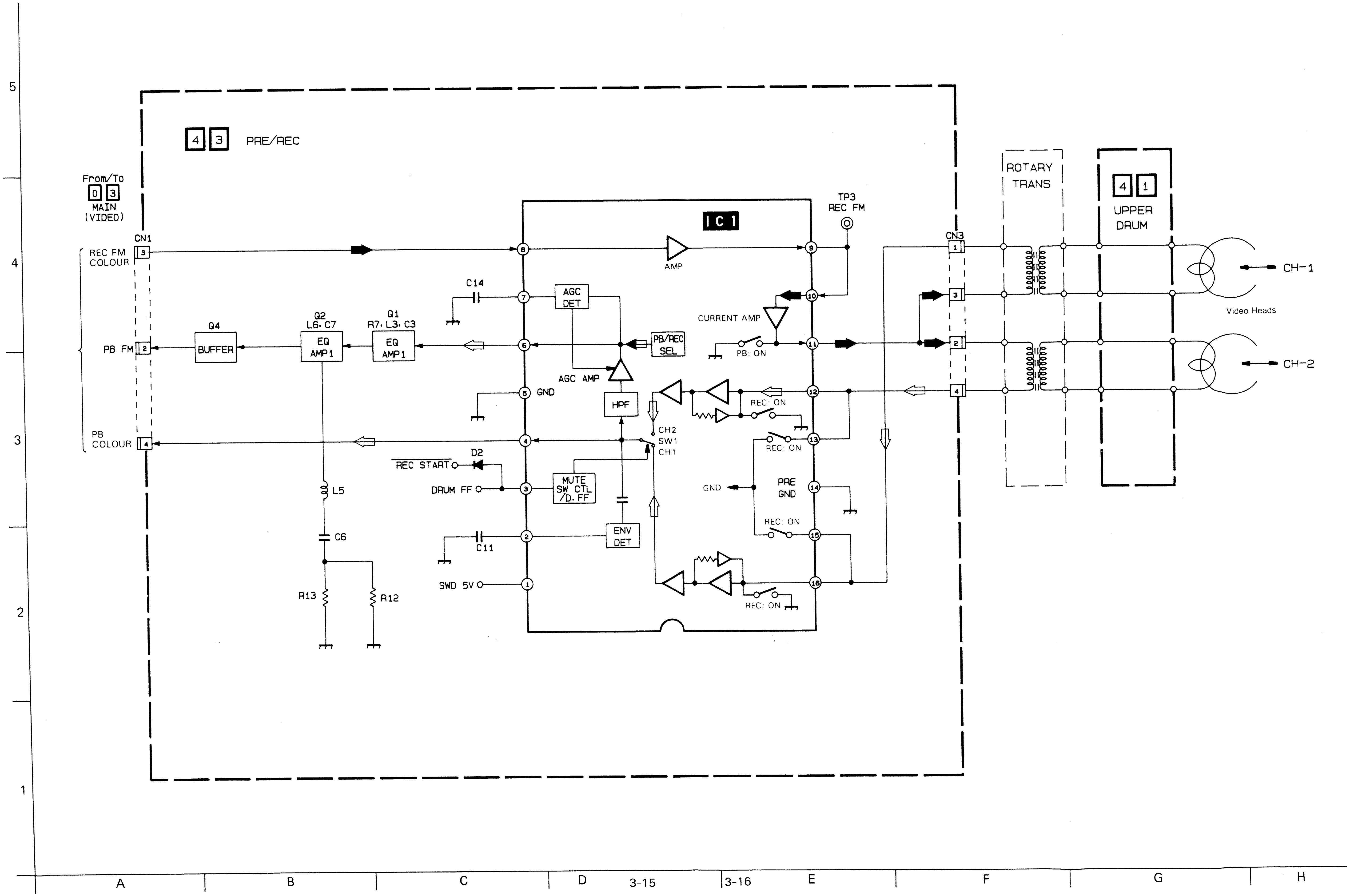
SWITCH OF IC 401 TABLE

SW 5	SW 6	SW 7	SP MODE	EP MODE
OFF	OFF	OFF		X1, X2
ON	OFF	OFF	SLOW	SLOW
OFF	OFF	ON	X1, X2	X3, X7
OFF	ON	OFF	X3	X13
OFF	ON	ON	X7	X21

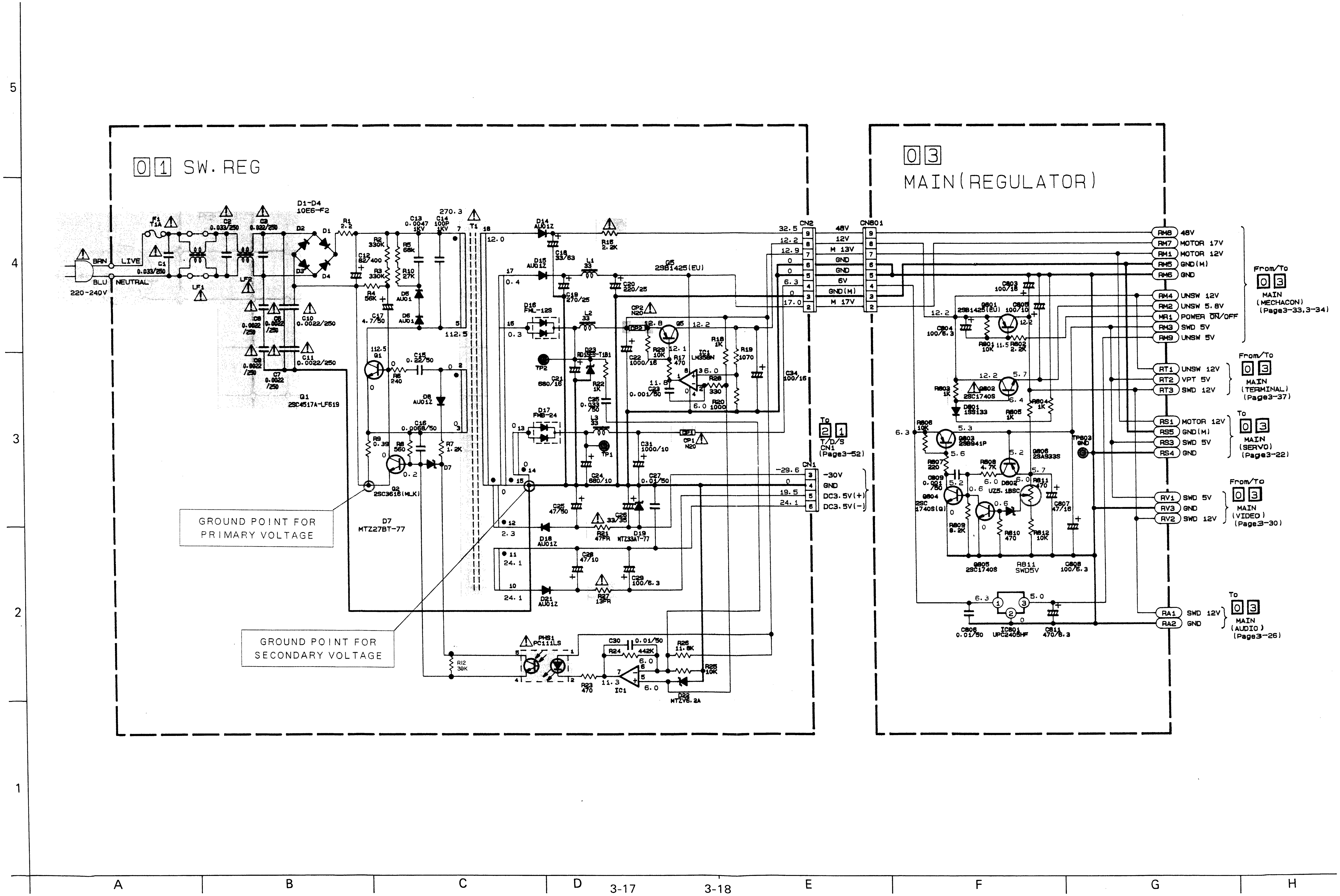
3.7 MECHACON BLOCK DIAGRAM


03 MECHACON (MAIN)
From 21 TIMER CN2
TIMER CLOCK
TIMER DATA
CN603
To 03 REGULATOR
POWER ON/OFF
From 03 SERVO
DRUM DRIVE
AVRG FM
CAP FG
CTL PULSE
DRUM FF
From 03 REGULATOR
MOTOR 13V
MOTOR 17V
Q601,Q602 R638,R639
VOLTAGE UP for FF
D606
D602,C603
RESET
R603,R604
CF 601
X IN
X OUT
RESET
START SENS
CASSETTE SENS
VOLTAGE UP FOR FF MODE
Vcc
VREF
PAUSE IN
56 CASSETTE HOUSING
Q2
START SENSOR
CASS SENSOR
51 DECK TERMINAL
CN2
CN3
CN1
CN601
R1
R7
MOTOR 12V/17V
TH801
R653
R643
R645
UNSW 5.8V (From REG RM2)
D601
REMOTE JACK
IC601
TEXT
RENTAL
EDIT
REC START
SP
AUX
REC
PICTURE MUTE
NC
EE
H SELECT
AUTO/MAN/SLOW
P MUTE
To 03 VIDEO
To 03 AUDIO
AUDIO MUTE
CN703
PICTURE MUTE
SYNC DET
From/To 07 TUNER UNIT CN2
UNSW 5V
Q605
ES
VIDEO
To 03 TERMINAL
TRACKING PRESET & CHANNEL DATA MEMORY
MEMORY DATA OUT
MEMORY DATA IN
MEMORY CE
MEMORY CLOCK
IC602
MEMORY DATA
CN701
TNR CTL
VH
VL
UHF
To 07 TUNER CTL CN1
V PULSE
SERIAL DATA
S/M/P CLK
SERIAL CLOCK
DUTY I/O
SERVO
PAUSE
CAP DRIVE
From/To 03 SERVO
D604
D605
D603
CAP REV
SWD 5V
MOTOR GND
CN601
CN1
CN2
51 DECK TERMINAL
57 CAP MDA
51 DECK TERMINAL
BY MODE MOTOR
S3 MODE SENSOR
MODE SENS A
MODE SENS B
MODE SENS C
R3
PS1
AMP
TAKE UP TURNTABLE
S2
REC SAFETY
REEL FG (TU)
THERM
SWD 5V
R5
R4
PS2
D1
Q1
SUPPLY TURNTABLE
INCL MAIN DECK [M4]
REEL FG (SUP)
END SENS
MOTOR 12V
LCM 1
LCM 2
CN602
IC1
CONTROL LOGIC
55 LOADING MDA
M
LOADING MOTOR
A
B
C
D
E
F
G
H
1
2
3
4
5

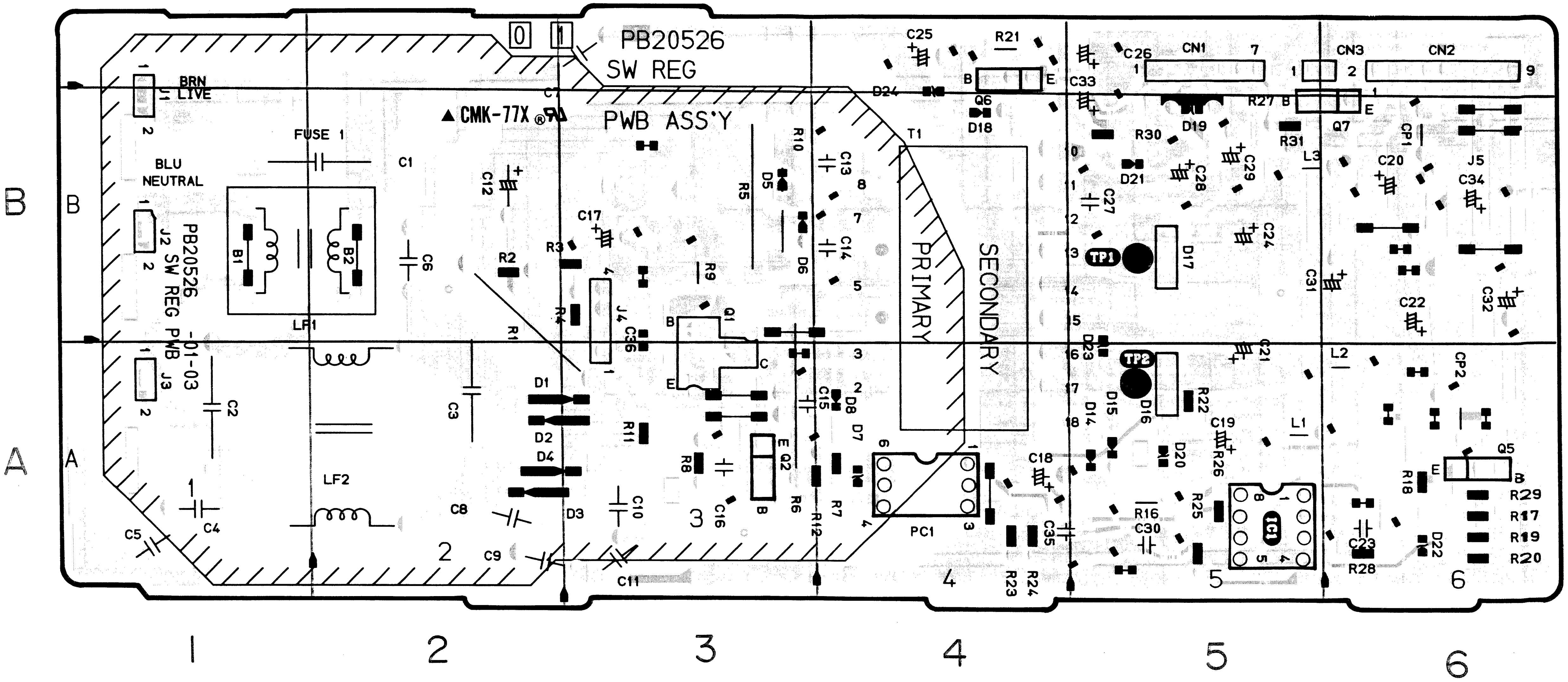
3.8 PRE/REC BLOCK DIAGRAM


4 3 PRE/REC
From/To
0 3
MAIN
(VIDEO)
CN1
REC FM
COLOUR
PB FM
PB
COLOUR
Q4
BUFFER
Q2
L6, C7
EQ
AMP1
Q1
R7, L3, C3
EQ
AMP1
L5
C6
R13
R12
C14
C11
IC1
AMP
AGC
DET
AGC AMP
HPF
PB/REC
SEL
ENV
DET
MUTE
SW CTL
/D. FF
GND
REC START
D2
DRUM FF
SWD 5V
CH2
SW1
CH1
CURRENT AMP
PB: ON
REC: ON
REC: ON
REC: ON
REC: ON
PRE
GND
GND
TP3
REC FM
CN3
ROTARY
TRANS
4 1
UPPER
DRUM
CH-1
CH-2
Video Heads
5
4
3
2
1
A
B
C
D
E
F
G
H

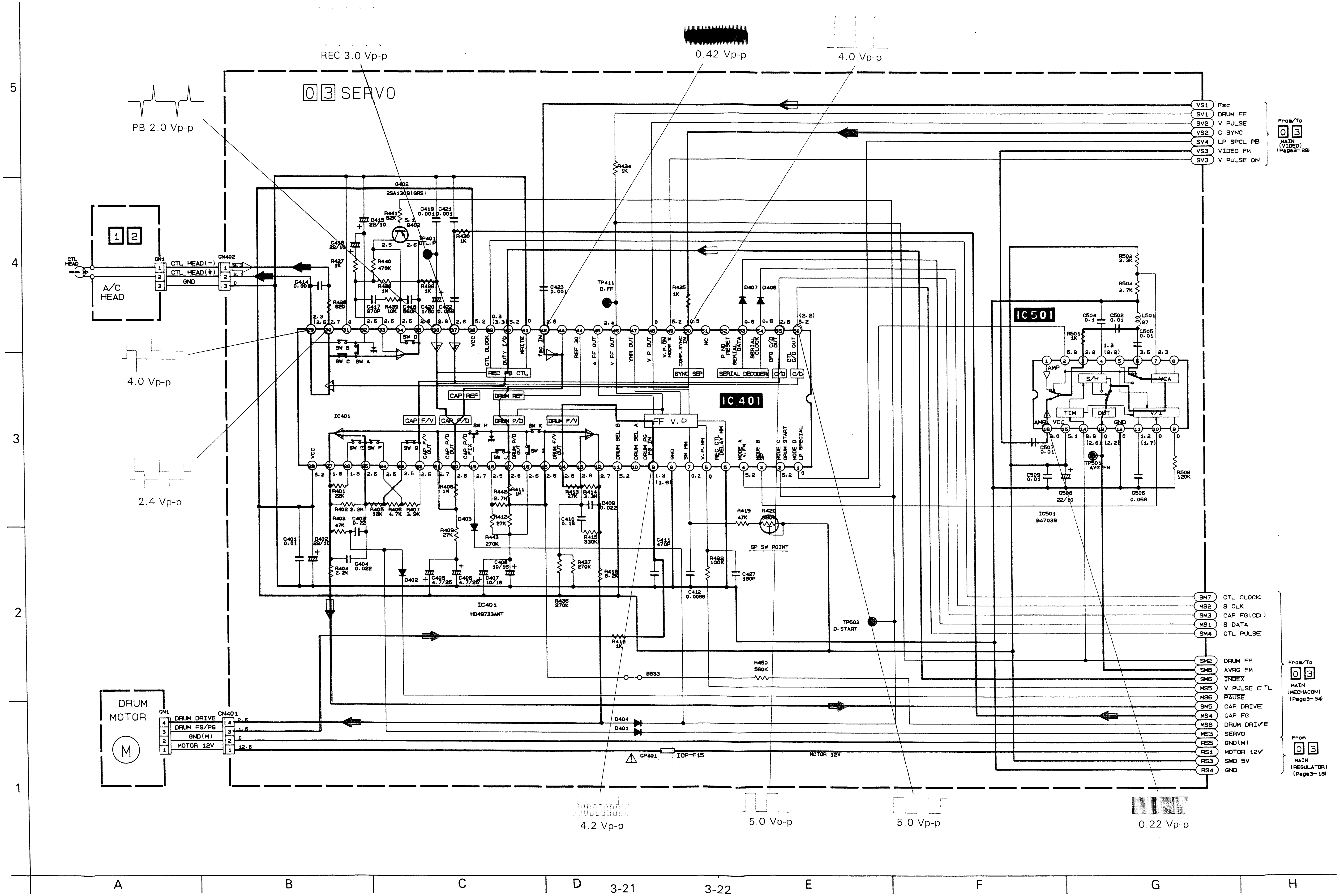
3.9 SWITCH REGURATOR SCHEMATIC DIAGRAM


01 SW. REG
03 MAIN(REGULATOR)
BRN LIVE
BLU NEUTRAL
220-240V
F1 T1A
C1 0.033/250
C2 0.033/250
C3 0.022/250
LF1
LF2
D1-D4 10E6-F2
R1 2.2
R2 330K
R3 330K
R4 56K
R5 68K
R10 27K
C12 82/400
C13 0.0047 1KV
C14 100P 1KV
270.3
T1
C17 4.7/50
D5 AU01
D6 AU01
Q1 2SC4517A-LF619
112.5
C15 0.22/50
R6 240
D8 AU01Z
C16 0.0068/50
R9 0.39
R8 560
R7 1.2K
Q2 2SC3616(MLK)
D7 MTZ27BT-77
GROUND POINT FOR PRIMARY VOLTAGE
GROUND POINT FOR SECONDARY VOLTAGE
R12 39K
PHS1 PC111LS
R23 470
IC1
R24 442K
C30 0.01/50
R26 11.8K
R25 10K
D22 MTZV6.2A
D14 AU01Z
D15 AU01Z
D16 FML-12S
D17 FMB-24
D18 AU01Z
D19 MTZ33AT-77
D21 AU01Z
D23 RD15ES-T1B1
C18 33/63
C19 270/25
C20 220/25
C21 680/16
C22 1000/16
C23 0.001/50
C24 680/10
C25 47/50
C26 33/35
C27 0.01/50
C28 47/10
C29 100/6.3
C31 1000/10
C34 100/16
C35 0.033/50
L1 33
L2 33
L3 33
R16 2.2K
R17 470
R18 1K
R19 1070
R20 1000
R21 47FR
R22 1K
R27 15FR
R28 330
R29 10K
Q5 2SB1425(EU)
IC1 LM358N
CP1 N20
CP2 N20
TP1
TP2
CN2
32.5 12.2 12.9 0 0 6.3 0 17.0
48V 12V M 13V GND GND 6V GND(M) M 17V
CN801
CN1
-29.6 0 19.5 24.1
-30V GND DC3.5V(+) DC3.5V(-)
To 21 T/D/S CN1 (Page3-52)
RM8 48V
RM7 MOTOR 17V
RM1 MOTOR 12V
RM5 GND(M)
RM6 GND
RM4 UNSW 12V
RM2 UNSW 5.8V
MR1 POWER ON/OFF
RM3 SWD 5V
RM9 UNSW 5V
From/To 03 MAIN (MECHACON) (Page3-33,3-34)
RT1 UNSW 12V
RT2 VPT 5V
RT3 SWD 12V
From/To 03 MAIN (TERMINAL) (Page3-37)
RS1 MOTOR 12V
RS5 GND(M)
RS3 SWD 5V
RS4 GND
To 03 MAIN (SERVO) (Page3-22)
RV1 SWD 5V
RV3 GND
RV2 SWD 12V
From/To 03 MAIN (VIDEO) (Page3-30)
RA1 SWD 12V
RA2 GND
To 03 MAIN (AUDIO) (Page3-26)
Q801 2SB1425(EU)
C803 100/16
C805 100/10
C804 100/6.3
R801 10K
R802 2.2K
Q802 2SC1740S
R803 1K
D801 1SS133
R804 1K
R805 1K
Q803 2SB941P
R806 10K
R807 220
C809 0.001/50
Q804 2SC1740S(Q)
R808 4.7K
Q806 2SA933S
D802 UZ5.1BSC
R811 470
C807 47/16
R809 8.2K
R810 470
R812 10K
Q805 2SC1740S
R811 SWD5V
C808 100/6.3
TP803 GND
C806 0.01/50
IC801 UPC2405HF
C811 470/6.3
A B C D E F G H
1 2 3 4 5

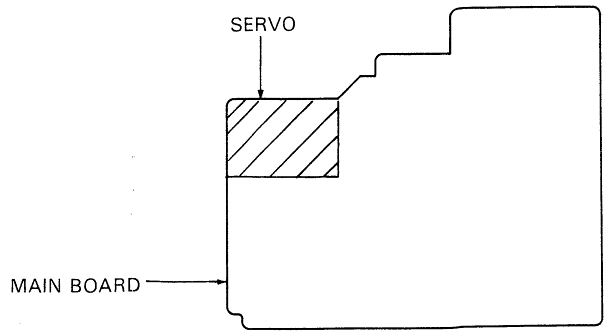
3.10 SWITCH REGURATOR CIRCUIT BOARD


PB20526
SW REG
PWB ASS'Y
CMK-77X
BRN LIVE
BLU NEUTRAL
J1
J2
J3
PB20526 -01-03
J2 SW REG PWB
FUSE 1
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
C12
C13
C14
C15
C16
C17
C18
C19
C20
C21
C22
C23
C24
C25
C26
C27
C28
C29
C30
C31
C32
C33
C34
C35
C36
B1
B2
LF1
LF2
D1
D2
D3
D4
D5
D6
D7
D8
D14
D15
D16
D17
D18
D19
D20
D21
D22
D23
D24
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
R16
R17
R18
R19
R20
R21
R22
R23
R24
R25
R26
R27
R28
R29
R30
R31
Q1
Q2
Q5
Q6
Q7
T1
PRIMARY
SECONDARY
PC1
IC1
TP1
TP2
L1
L2
L3
J4
J5
CN1
CN2
CN3
CP1
CP2
A
B
1
2
3
4
5
6

3.11 SERVO SCHEMATIC DIAGRAM

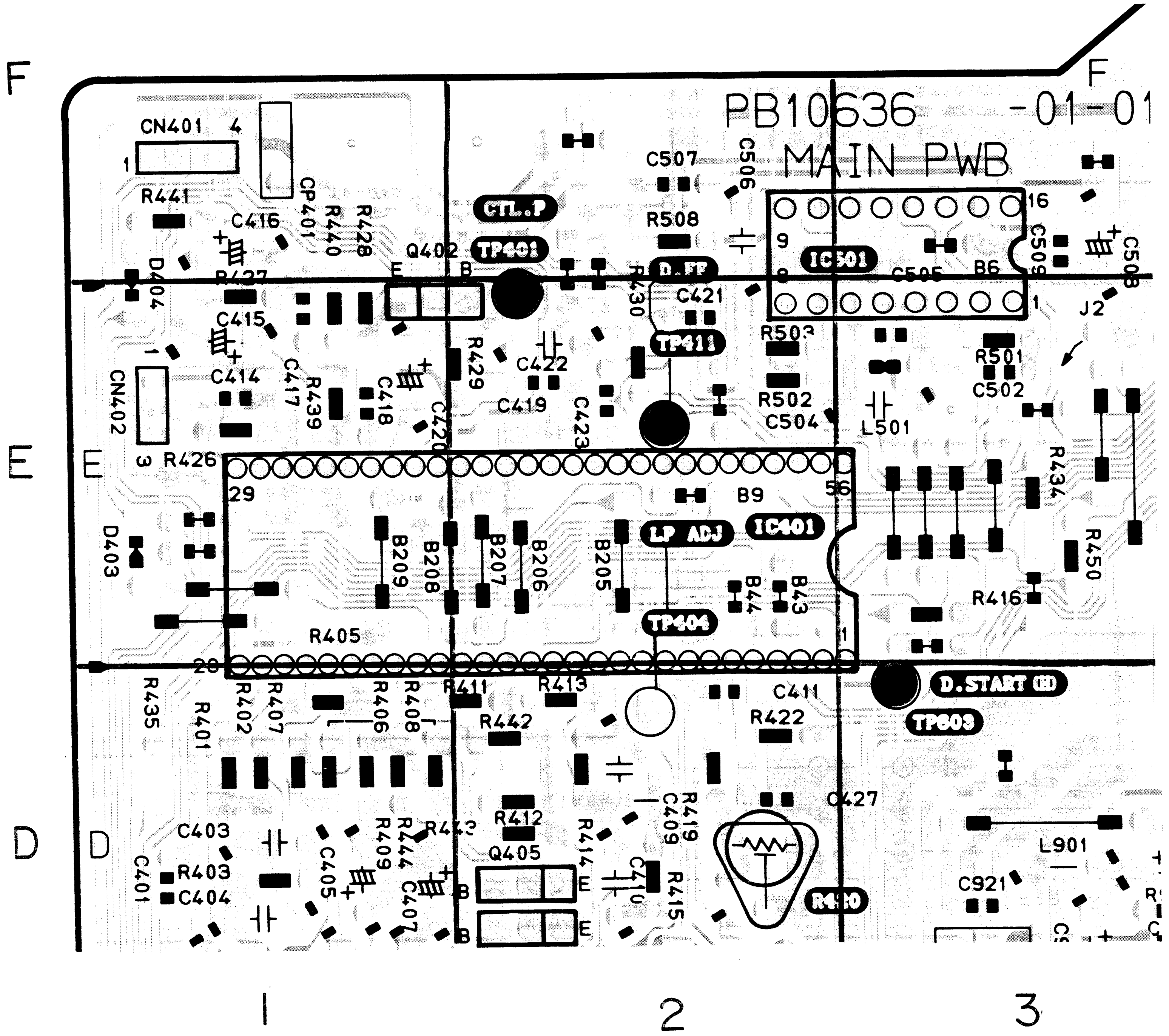

03 SERVO
REC 3.0 Vp-p
0.42 Vp-p
4.0 Vp-p
PB 2.0 Vp-p
4.0 Vp-p
2.4 Vp-p
4.2 Vp-p
5.0 Vp-p
5.0 Vp-p
0.22 Vp-p
12
CTL HEAD
A/C HEAD
CN1
CN402
CTL HEAD(-)
CTL HEAD(+)
GND
Q402
2SA1309(QRS)
TP401 CTL.P
TP411 D.FF
IC401
HD49733ANT
IC501
BA7039
TP501 AVG FM
TP603 D.START
SP SW POINT
B533
D404
D401
CP401 ICP-F15
MOTOR 12V
DRUM MOTOR
M
CN401
DRUM DRIVE
DRUM FG/PG
GND(M)
MOTOR 12V
VS1 Fsc
SV1 DRUM FF
SV2 V PULSE
VS2 C SYNC
SV4 LP SPCL PB
VS3 VIDEO FM
SV3 V PULSE ON
From/To
03
MAIN (VIDEO) (Page3-29)
SM7 CTL CLOCK
MS2 S CLK
SM3 CAP FG(CD)
MS1 S DATA
SM4 CTL PULSE
SM2 DRUM FF
SM8 AVRG FM
SM6 INDEX
MS5 V PULSE CTL
MS6 PAUSE
SM5 CAP DRIVE
MS4 CAP FG
MS8 DRUM DRIVE
MS3 SERVO
RS5 GND(M)
RS1 MOTOR 12V
RS3 SWD 5V
RS4 GND
From/To
03
MAIN (MECHACON) (Page3-34)
From
03
MAIN (REGULATOR) (Page3-18)
REC PB CTL
SYNC SEP
SERIAL DECODER
C/D
CAP REF
DRUM REF
CAP F/V
CAP P/D
DRUM P/D
DRUM F/V
FF V.P
AMP
S/H
VCA
TIM
OUT
V/I
VCC
GND
1
2
3
4
5
A
B
C
D
E
F
G
H

3.12 SERVO (MAIN) CIRCUIT BOARD



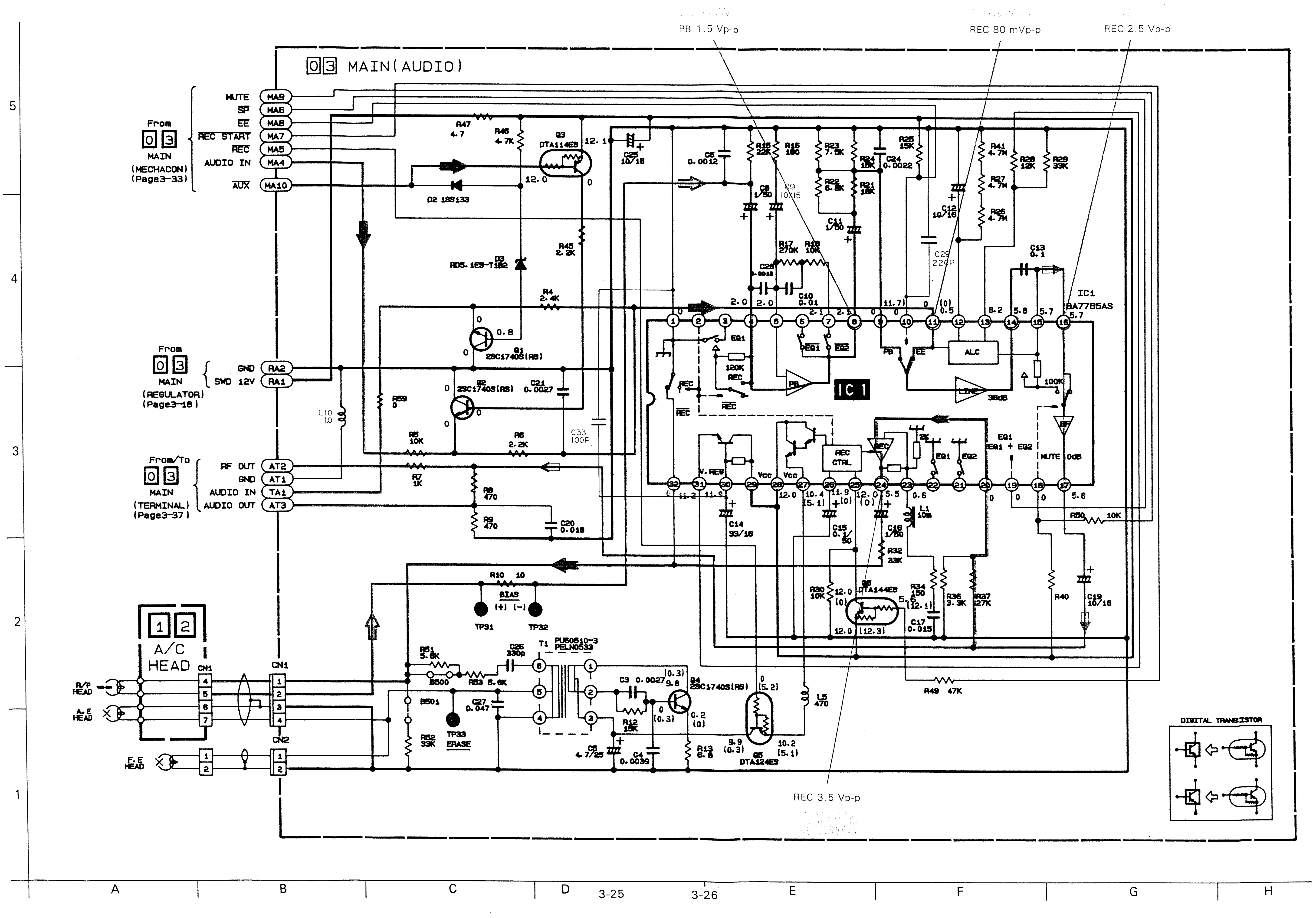
SERVO
MAIN BOARD

- MAIN board assembly is located in page 37,38



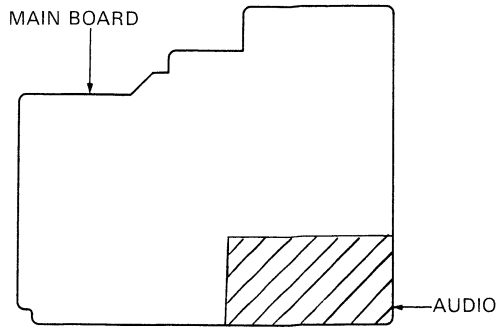
F
E
D
1
2
3
PB10636 -01-01
MAIN PWB
CN401
1
4
R441
C416
CP401
R440
R428
Q402
E
B
CTL.P
TP401
C507
C506
R508
D.FF
R430
C421
TP411
IC501
16
9
8
1
C505
B6
C509
C508
J2
D404
R427
C415
C414
C417
R439
C418
C420
R429
C422
C419
C423
R503
R502
C504
L501
R501
C502
R434
R450
R416
CN402
1
3
R426
D403
29
28
56
IC401
B9
LP ADJ
B209
B208
B207
B206
B205
B44
B43
TP404
R405
D.START (H)
TP803
R435
R401
R402
R407
R406
R408
R411
R413
R442
C411
R422
C427
R419
C409
R412
R414
R415
C410
R420
Q405
B
E
C403
C401
R403
C404
C405
R409
R444
R443
C407
L901
C921

3.13 AUDIO SCHEMATIC DIAGRAM

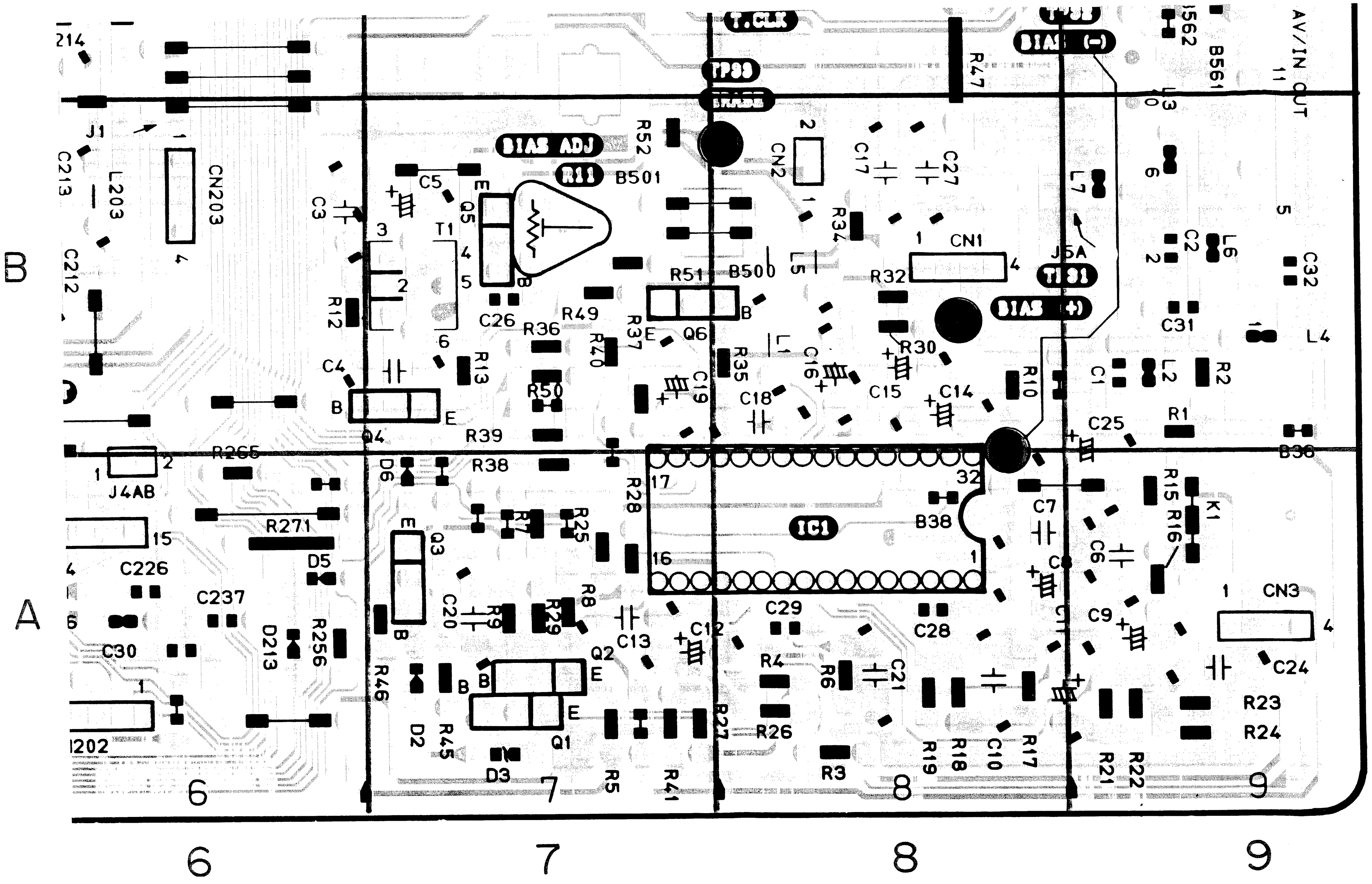


PB 1.5 Vp-p
REC 80 mVp-p
REC 2.5 Vp-p
REC 3.5 Vp-p
03 MAIN(AUDIO)
From 03 MAIN (MECHACON) (Page3-33)
MUTE MA9
SP MA6
EE MA8
REC START MA7
REC MA5
AUDIO IN MA4
AUX MA10
From 03 MAIN (REGULATOR) (Page3-18)
GND RA2
SWD 12V RA1
From/To 03 MAIN (TERMINAL) (Page3-37)
RF OUT AT2
GND AT1
AUDIO IN TA1
AUDIO OUT AT3
12 A/C HEAD
R/P HEAD
A.E HEAD
F.E HEAD
CN1
CN2
R47 4.7
R46 4.7K
Q3 DTA114ES
D2 1SS133
D3 RD5.1ES-T1B2
R45 2.2K
R4 2.4K
Q1 2SC1740S(RS)
Q2 2SC1740S(RS)
C21 0.0027
R59 0
L10 10
C33 100P
R5 10K
R6 2.2K
R7 1K
R8 470
R9 470
C20 0.018
C25 10/16
C6 0.0012
R15 22K
R16 180
C8 1/50
C9 10X15
R23 7.5K
R22 6.8K
R24 15K
R21 18K
C24 0.0022
R25 15K
C11 1/50
C12 10/16
R41 4.7M
R27 4.7M
R26 4.7M
R28 12K
R29 33K
R17 270K
R18 10K
C28 0.0012
C10 0.01
C29 220P
C13 0.1
IC1 BA7765AS
EQ1
EQ2
120K
REC
PB
EE
ALC
LINE 36dB
100K
IC1
REC CTRL
V.REG
Vcc
MUTE
0dB
2K
C14 33/16
C15 0.1/50
C16 1/50
L1 10m
R32 33K
R50 10K
R30 10K
Q6 DTA144ES
R34 150
R36 3.3K
R37 27K
C17 0.015
R40
C19 10/16
R49 47K
R10 10
BIAS (+) (-)
TP31
TP32
R51 5.6K
B500
R53 5.6K
C26 330p
T1 PU60510-3 PELN0533
B501
C27 0.047
R52 33K
TP33 ERASE
C3 0.0027
Q4 2SC1740S(RS)
R12 15K
C5 4.7/25
C4 0.0039
R13 6.8
Q5 DTA124ES
L5 470
DIGITAL TRANSISTOR
A B C D E F G H
1 2 3 4 5

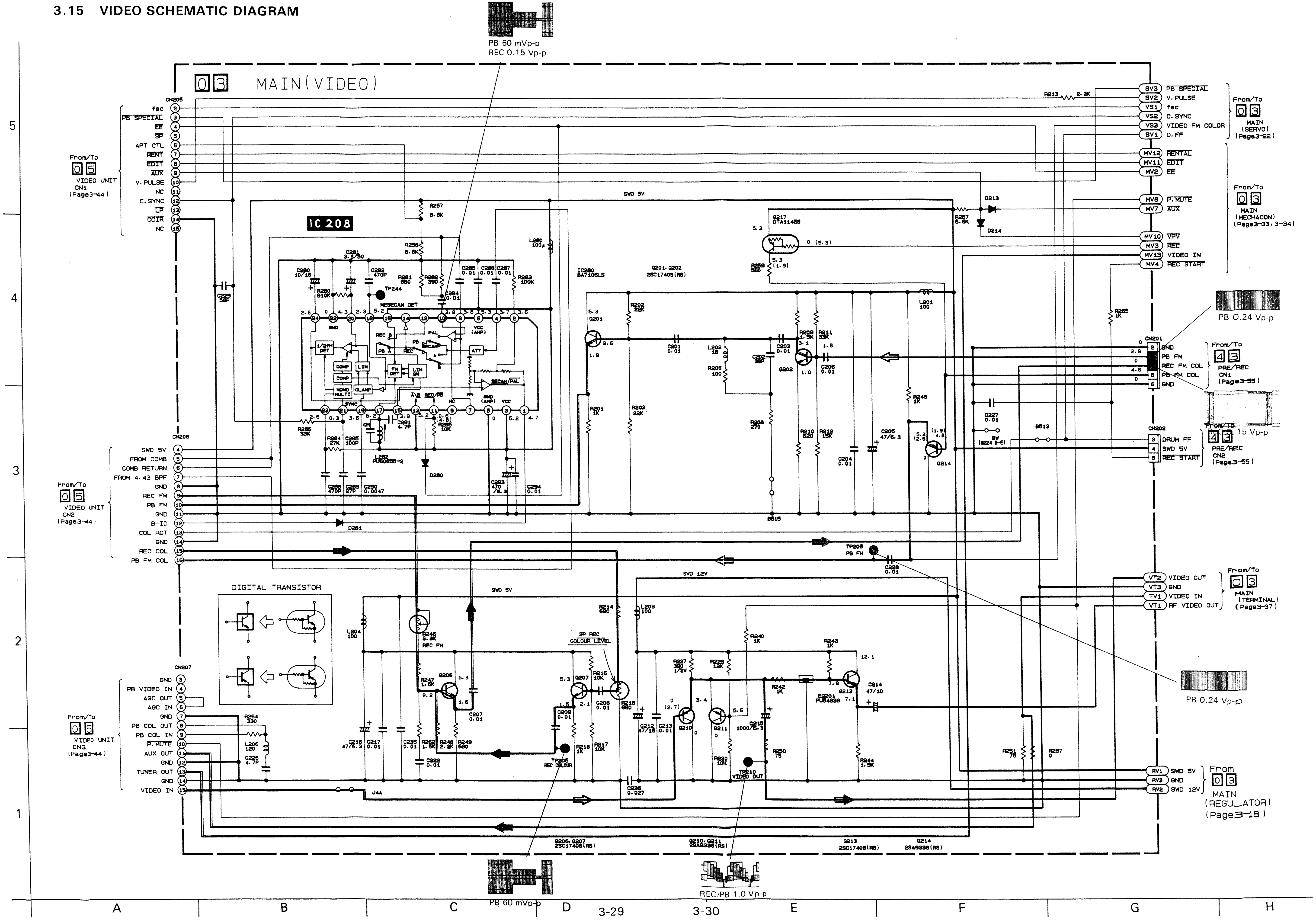
3.14 AUDIO (MAIN) CIRCUIT BOARD


MAIN BOARD
AUDIO

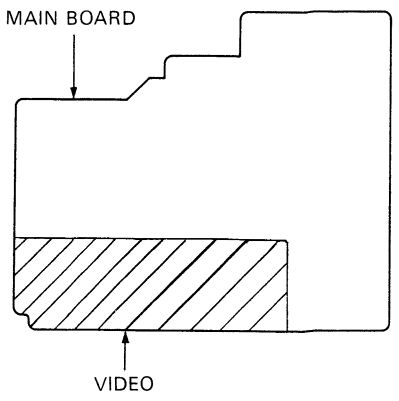
• MAIN board assembly is located in page 37,38


B
A
6
7
8
9
T.CLK
TP33
ERASE
BIAS ADJ
R11
B501
BIAS (-)
BIAS (+)
TP31
J5A
IC1
CN1
CN2
CN3
CN203
J4AB
R47
R52
R51
B500
B561
B562
AV/IN OUT
T1
Q1
Q2
Q3
Q4
Q5
Q6
D2
D3
D5
D6
D213
L1
L2
L3
L4
L5
L6
L7
L203
K1
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
C12
C13
C14
C15
C16
C17
C18
C19
C20
C21
C24
C25
C26
C27
C28
C29
C30
C31
C32
C212
C213
C226
C237
R1
R2
R3
R4
R5
R6
R8
R9
R10
R12
R13
R15
R16
R17
R18
R19
R21
R22
R23
R24
R25
R26
R27
R28
R29
R30
R32
R34
R35
R36
R37
R38
R39
R40
R41
R45
R46
R49
R50
R256
R265
R271
B36
B38
J1
214
1202
17
32
16
1

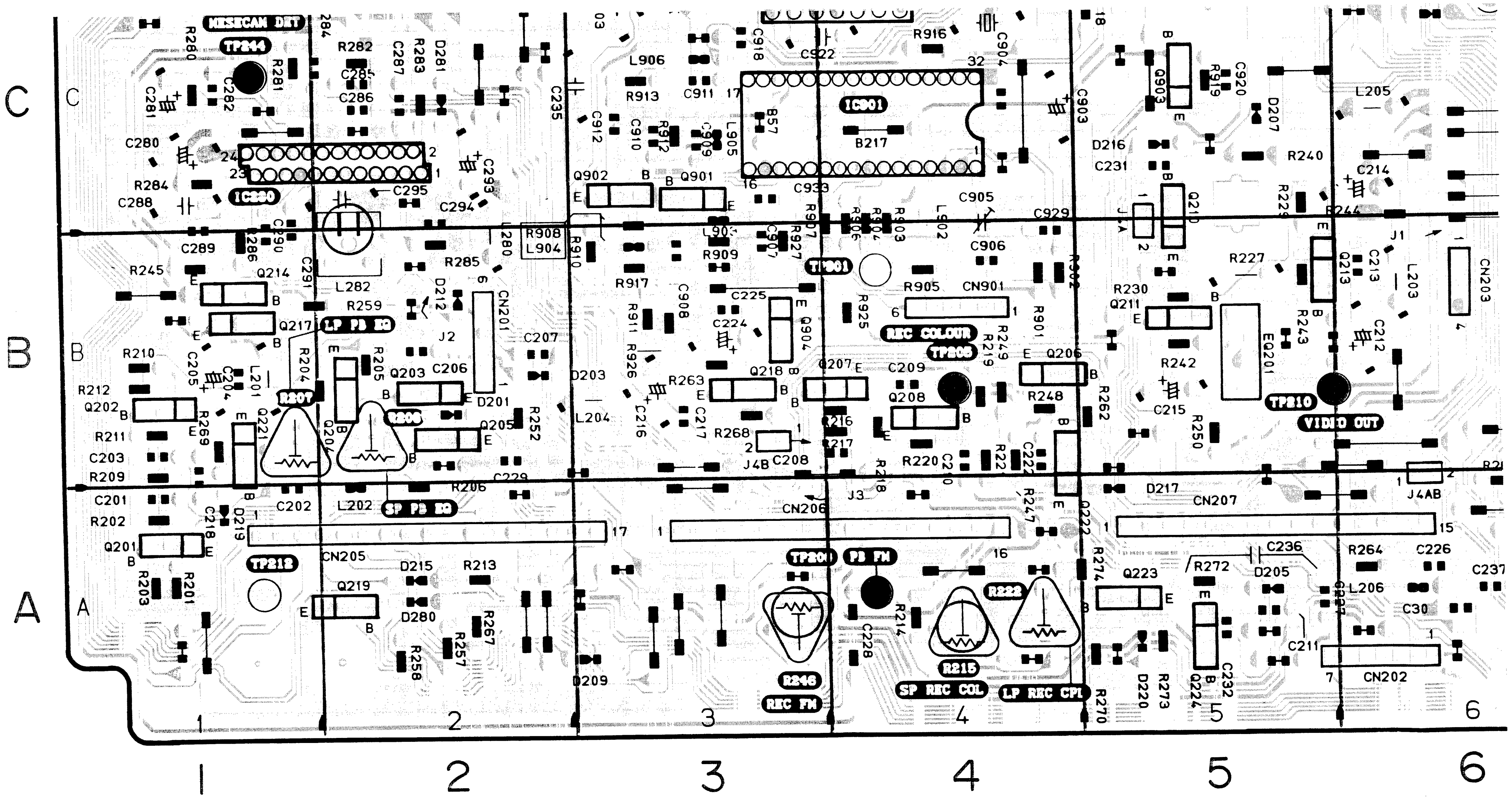
3.15 VIDEO SCHEMATIC DIAGRAM


PB 60 mVp-p
REC 0.15 Vp-p
03 MAIN(VIDEO)
IC208
CN205
fsc
PB SPECIAL
EE
SP
APT CTL
RENT
EDIT
AUX
V.PULSE
NC
C.SYNC
LP
CCIR
NC
From/To 05 VIDEO UNIT CN1 (Page3-44)
CN206
SWD 5V
FROM COMB
COMB RETURN
FROM 4.43 BPF
GND
REC FM
PB FM
GND
B-ID
COL ROT
GND
REC COL
PB FM COL
From/To 05 VIDEO UNIT CN2 (Page3-44)
CN207
GND
PB VIDEO IN
AGC OUT
AGC IN
GND
PB COL OUT
PB COL IN
P.MUTE
AUX OUT
GND
TUNER OUT
GND
VIDEO IN
From/To 05 VIDEO UNIT CN3 (Page3-44)
DIGITAL TRANSISTOR
SWD 5V
SWD 12V
IC280 BA7106LS
Q201, Q202 2SC1740S(RS)
Q217 DTA114ES
R213 2.2K
SV3 PB SPECIAL
SV2 V.PULSE
VS1 fsc
VS2 C.SYNC
VS3 VIDEO FM COLOR
SV1 D.FF
From/To 03 MAIN (SERVO) (Page3-22)
MV12 RENTAL
MV11 EDIT
MV2 EE
MV8 P.MUTE
MV7 AUX
MV10 VPV
MV3 REC
MV13 VIDEO IN
MV4 REC START
From/To 03 MAIN (MECHACON) (Page3-33, 3-34)
PB 0.24 Vp-p
CN201
GND
PB FM
REC FM COL
PB FM COL
GND
From/To 43 PRE/REC CN1 (Page3-55)
REC 0.15 Vp-p
CN202
DRUM FF
SWD 5V
REC START
From/To 43 PRE/REC CN2 (Page3-55)
VT2 VIDEO OUT
VT3 GND
TV1 VIDEO IN
VT1 RF VIDEO OUT
From/To 03 MAIN (TERMINAL) (Page3-37)
PB 0.24 Vp-p
RV1 SWD 5V
RV3 GND
RV2 SWD 12V
From 03 MAIN (REGULATOR) (Page3-18)
TP206 PB FM
TP205 REC COLOUR
TP210 VIDEO OUT
SP REC COLOUR LEVEL
R246 3.3K REC FM
Q206, Q207 2SC1740S(RS)
Q210, Q211 2SA933S(RS)
Q213 2SC1740S(RS)
Q214 2SA933S(RS)
PB 60 mVp-p
REC/PB 1.0 Vp-p
1
2
3
4
5
A
B
C
D
E
F
G
H

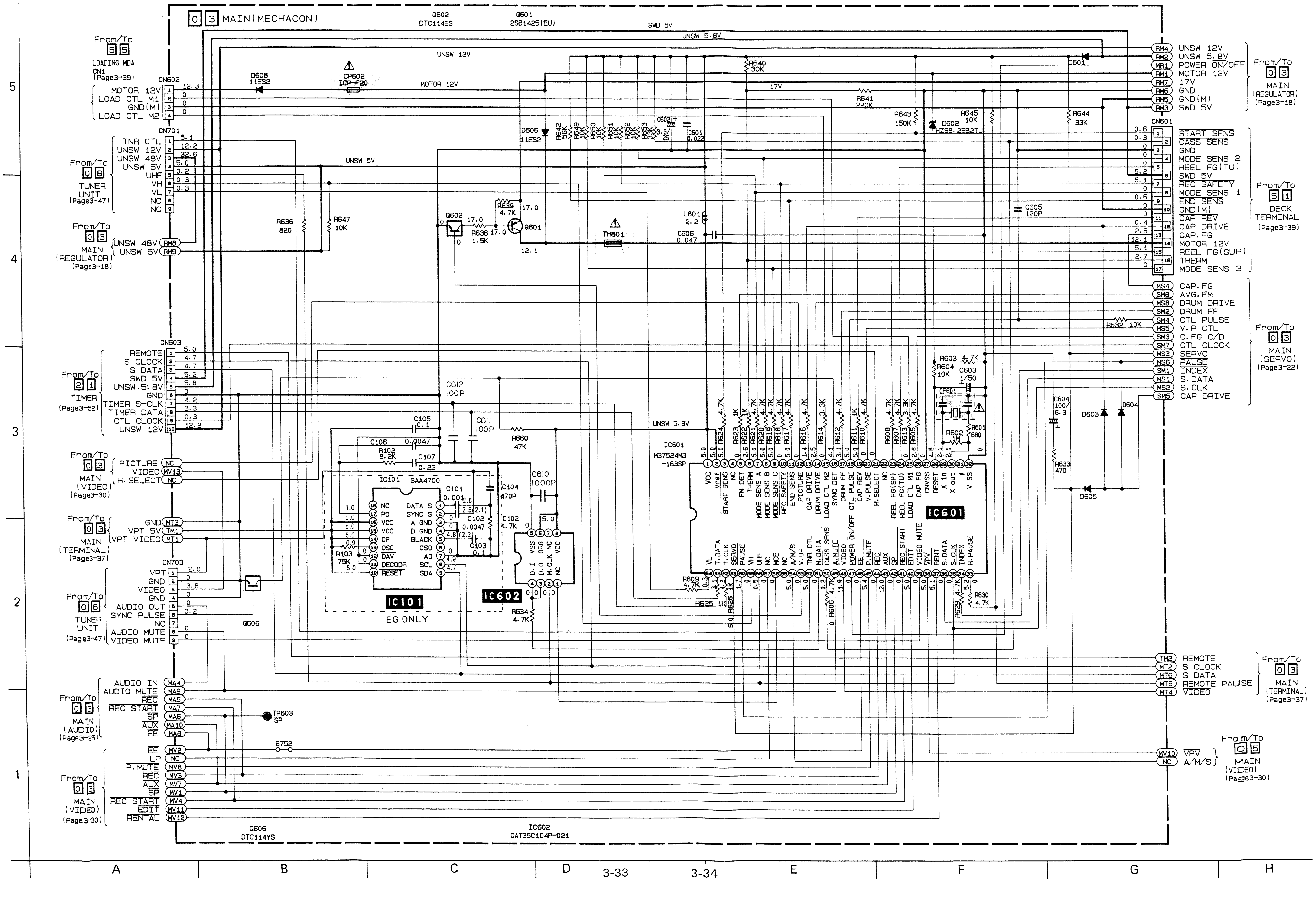
3.16 VIDEO (MAIN) CIRCUIT BOARD


MAIN BOARD
VIDEO

- MAIN board assembly is located in Page 3-41,42

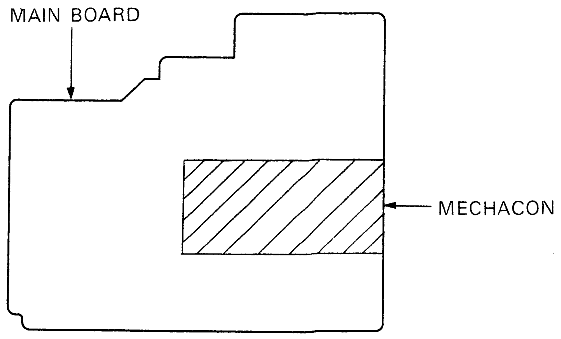

C
B
A
1
2
3
4
5
6
MESECAM DET
TP244
IC280
IC901
TP901
REC COLOUR
TP206
TP210
VIDEO OUT
TP212
TP201
PB FM
R207
R206
LP PB EQ
SP PB EQ
R246
REC FM
R215
SP REC COL
R222
LP REC CPL
CN201
CN202
CN203
CN205
CN206
CN207
CN901
J1
J2
J3
J4AB
J4B
Q201
Q202
Q203
Q205
Q206
Q207
Q208
Q211
Q213
Q214
Q217
Q218
Q219
Q221
Q223
Q224
Q901
Q902
Q903
Q904
Q210
Q220
Q222
Q216
L201
L202
L203
L204
L205
L206
L280
L282
L902
L903
L904
L905
L906
D201
D203
D205
D207
D209
D212
D215
D216
D217
D219
D220
D280
D281
EQ201
B217

3.17 MECHACON SCHEMATIC DIAGRAM

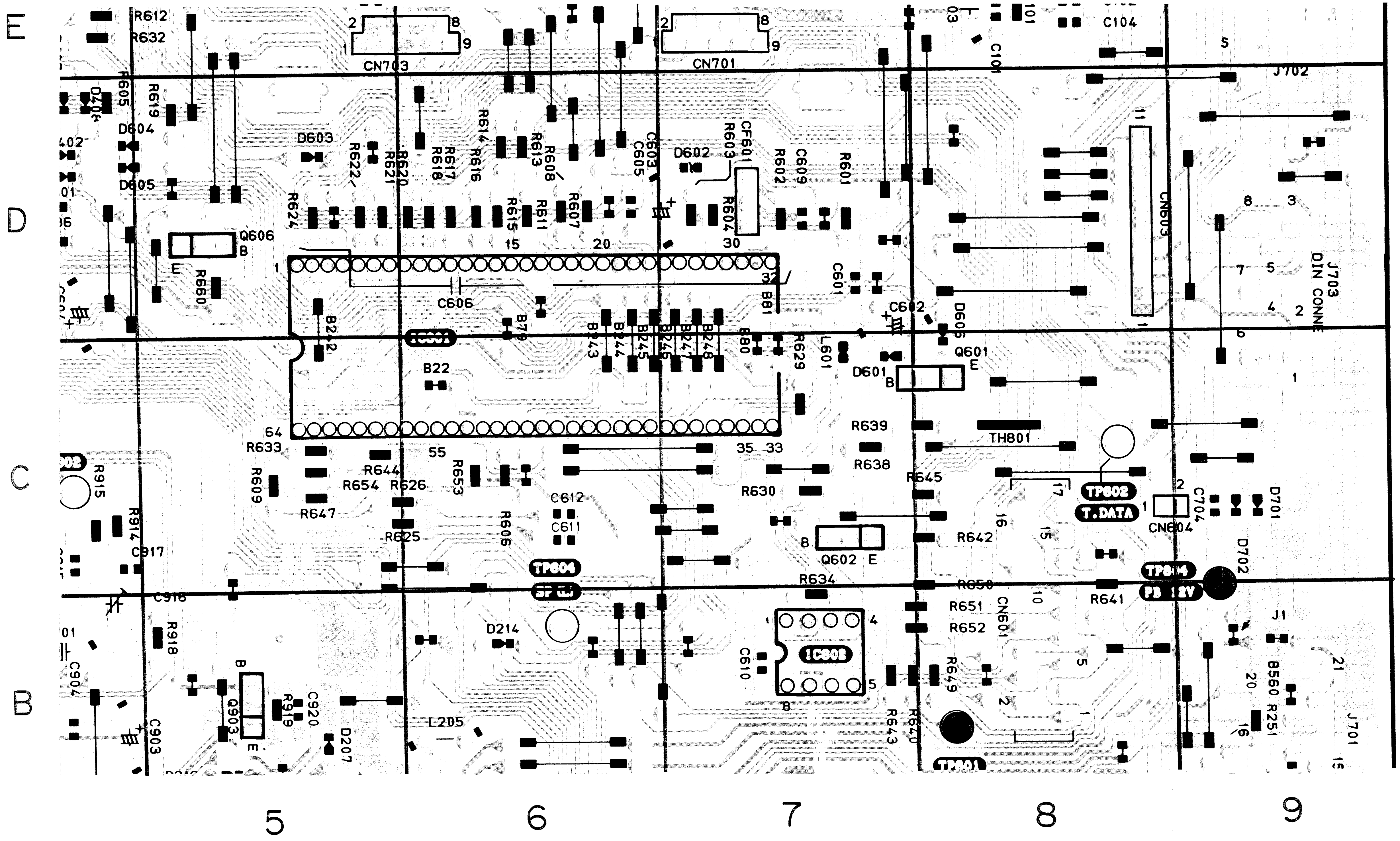


03 MAIN(MECHACON)
Q602 DTC114ES
Q601 2SB1425(EU)
SWD 5V
UNSW 5.8V
UNSW 12V
MOTOR 12V
17V
From/To 55 LOADING MDA CN1 (Page3-39)
CN602
MOTOR 12V
LOAD CTL M1
GND(M)
LOAD CTL M2
D608 11ES2
CP602 ICP-F20
CN701
TNR CTL
UNSW 12V
UNSW 48V
UNSW 5V
UHF
VH
VL
NC
NC
From/To 08 TUNER UNIT (Page3-47)
From/To 03 MAIN (REGULATOR) (Page3-18)
UNSW 48V RM8
UNSW 5V RM9
R636 820
R647 10K
R639 4.7K
R638 1.5K
D606 11ES2
TH801
L601 2.2
C606 0.047
C601 0.022
C602
R640 30K
R641 220K
R643 150K
D602 HZS8.2EB2TJ
R645 10K
R644 33K
D601
RM4 UNSW 12V
RM2 UNSW 5.8V
MR1 POWER ON/OFF
RM1 MOTOR 12V
RM7 17V
RM6 GND
RM5 GND(M)
RM3 SWD 5V
From/To 03 MAIN (REGULATOR) (Page3-18)
CN601
START SENS
CASS SENS
GND
MODE SENS 2
REEL FG(TU)
SWD 5V
REC SAFETY
MODE SENS 1
END SENS
GND(M)
CAP REV
CAP DRIVE
CAP.FG
MOTOR 12V
REEL FG(SUP)
THERM
MODE SENS 3
From/To 51 DECK TERMINAL (Page3-39)
C605 120P
MS4 CAP.FG
SM8 AVG.FM
MS8 DRUM DRIVE
SM2 DRUM FF
SM4 CTL PULSE
MS5 V.P CTL
SM3 C.FG C/D
SM7 CTL CLOCK
MS3 SERVO
MS6 PAUSE
SM1 INDEX
MS1 S.DATA
MS2 S.CLK
SM5 CAP DRIVE
From/To 03 MAIN (SERVO) (Page3-22)
R632 10K
CN603
REMOTE
S CLOCK
S DATA
SWD 5V
UNSW 5.8V
GND
TIMER S-CLK
TIMER DATA
CTL CLOCK
UNSW 12V
From/To 21 TIMER (Page3-52)
C612 100P
C611 100P
C105 0.1
C106 0.0047
R102 8.2K
C107 0.22
R660 47K
UNSW 5.8V
IC601 M37524M3 -163SP
IC101 SAA4700
C101 0.001
C102 0.0047
C103 0.1
C104 470P
C102 4.7K
C610 1000P
R103 75K
NC
PD
VCC
VCC
CP
OSC
DAV
DECODR
RESET
DATA S
SYNC S
A GND
D GND
BLACK
CS0
A0
SCL
SDA
VSS
ORG
NC
VCC
D.I
D.O
M.CLK
NC
IC101
EG ONLY
IC602
R634 4.7K
R603 4.7K
R604 10K
C603 1/50
CF601
R602
R601 680
C604 100/6.3
R633 470
D603
D604
D605
VCC
Vref
START SENS
NC
FM DET
THERM
MODE SENS A
MODE SENS B
MODE SENS C
REC SAFETY
END SENS
PICTURE
CAP DRIVE
DRUM DRIVE
LOAD CTL M2
SYNC DET
DRUM FF
CTL PULSE
CAP REV
V.PULSE
H.SELECT
NC
REEL FG(SP)
REEL FG(TU)
LOAD CTL M1
CAP FG
CNVSS
RESET
X in
X out
V SS
IC601
VL
T.DATA
T.CLK
SERVO
PAUSE
VH
UHF
NC
MCE
NC
A/M/S
V.UP
TNR CTL
M.DATA
CASS SENS
A.MUTE
VIDEO
POWER ON/OFF
EE
P.MUTE
REC
AUX
SP
REC START
EDIT
VIDEO MUTE
VPV
RENT
S.DATA
S.CLK
INDEX
R.PAUSE
R624 4.7K
R623 1K
R622 1K
R621 4.7K
R620 4.7K
R619 4.7K
R618 4.7K
R617 4.7K
R616 4.7K
R614 3.3K
R612 4.7K
R611 1K
R610 4.7K
R608 4.7K
R607 4.7K
R613 3.3K
R615 4.7K
R605 4.7K
R609 4.7K
R625
R626
R606
R629 4.7K
R630 4.7K
From/To 03 MAIN (VIDEO) (Page3-30)
PICTURE NC
VIDEO MV13
H.SELECT NC
From/To 03 MAIN (TERMINAL) (Page3-37)
GND MT3
VPT 5V TM1
VPT VIDEO MT1
CN703
VPT
GND
VIDEO
GND
AUDIO OUT
SYNC PULSE
NC
AUDIO MUTE
VIDEO MUTE
From/To 08 TUNER UNIT (Page3-47)
Q606
From/To 03 MAIN (AUDIO) (Page3-25)
AUDIO IN MA4
AUDIO MUTE MA9
REC MA5
REC START MA7
SP MA6
AUX MA10
EE MA8
TP603 SP
B752
From/To 03 MAIN (VIDEO) (Page3-30)
EE MV2
LP NC
P.MUTE MV8
REC MV3
AUX MV7
SP MV1
REC START MV4
EDIT MV11
RENTAL MV12
Q606 DTC114YS
IC602 CAT35C104P-021
TM2 REMOTE
MT2 S CLOCK
MT6 S DATA
MT5 REMOTE PAUSE
MT4 VIDEO
From/To 03 MAIN (TERMINAL) (Page3-37)
MV10 VPV
NC A/M/S
From/To 05 MAIN (VIDEO) (Page3-30)
5
4
3
2
1
A
B
C
D
E
F
G
H

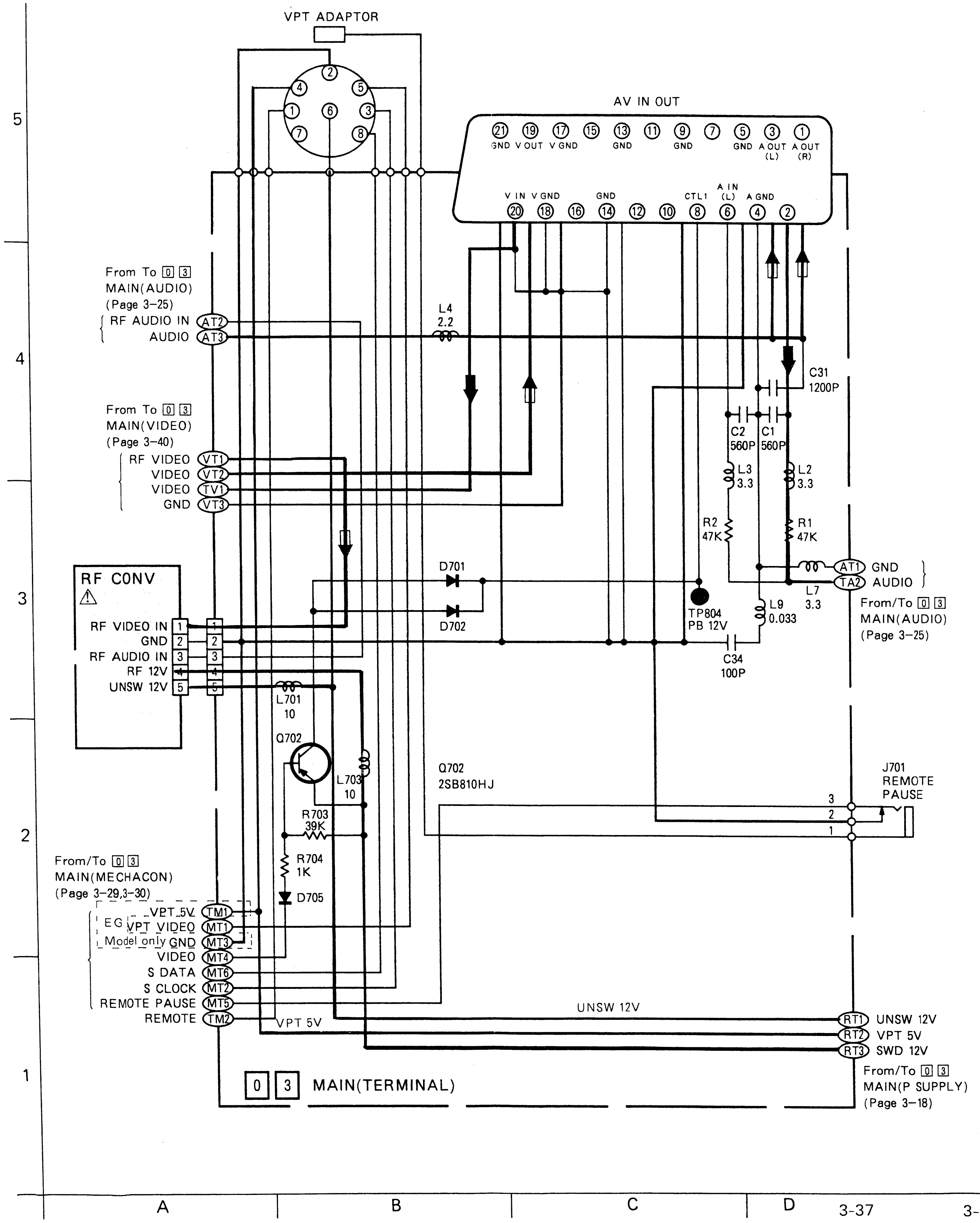
3.18 MECHACON (MAIN) CIRCUIT BOARD


MAIN BOARD
MECHACON

• MAIN board assembly is located in page 37,38

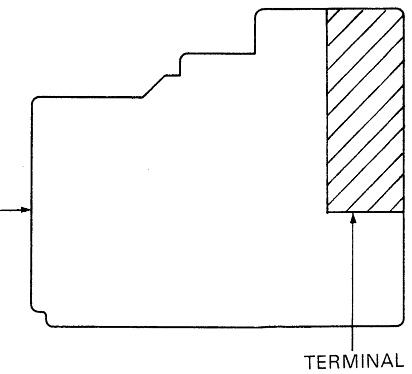

E
D
C
B
5
6
7
8
9
R612
R632
R605
R619
D604
D605
D603
R622
R621
R620
R617
R618
R614
R616
R613
R608
R624
R615
R611
R607
C603
C605
D602
R603
CF601
R604
R602
C609
R601
CN703
CN701
C101
C104
J702
CN603
J703
DIN CONNE
Q606
B
E
R660
C606
B242
B79
B243
B244
B245
B246
B247
B248
B80
B81
R629
L601
IC601
B22
C601
C602
D606
Q601
D601
R633
R609
R644
R654
R626
R653
R647
R625
R606
C612
C611
R630
R638
R639
R645
TH801
TP602
T.DATA
CN604
C704
D701
D702
R642
Q602
R634
R650
R651
R652
CN601
R641
TP804
PB 12V
J1
R915
R914
C917
C918
R918
C904
Q903
R919
C920
D207
C903
TP604
D214
L205
IC602
C610
R649
R643
R640
TP801
B560
R251
J701
64
55
35
33
32
15
20
30
1
11
17
16
15
10
5
2
21
20
16
8
3
7
5
4
2
6
1
S
4
9

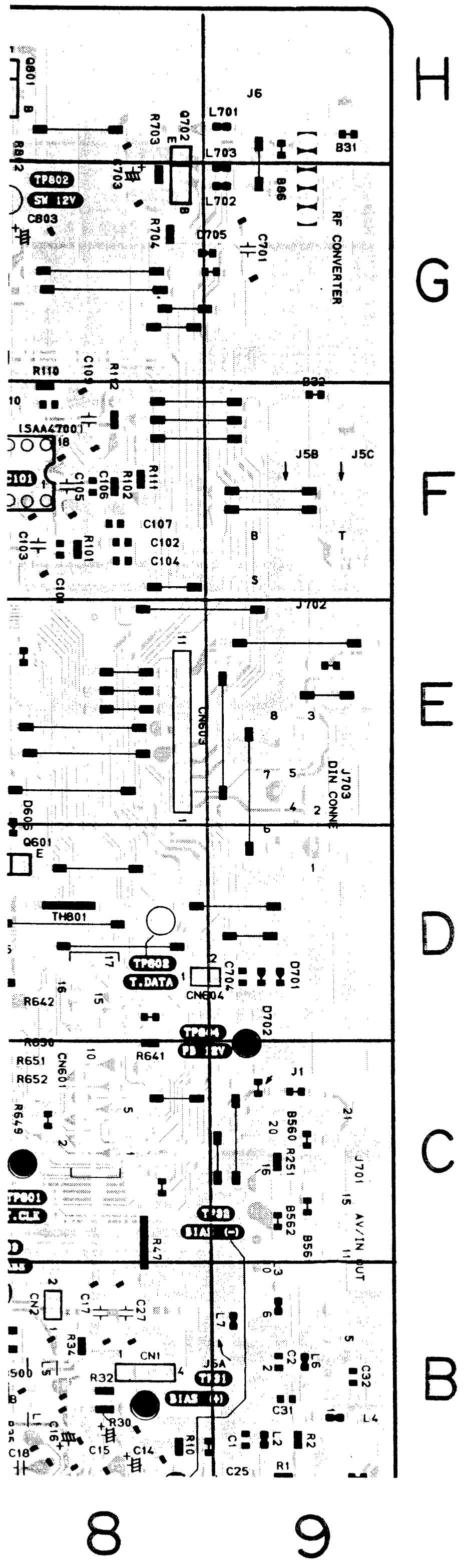
3.19 TERMINAL SCHEMATIC DIAGRAM


VPT ADAPTOR
AV IN OUT
GND V OUT V GND GND GND GND A OUT (L) A OUT (R)
V IN V GND GND CTL1 A IN (L) A GND
From To 0 3 MAIN(AUDIO) (Page 3–25)
RF AUDIO IN AT2
AUDIO AT3
L4 2.2
C31 1200P
From To 0 3 MAIN(VIDEO) (Page 3–40)
RF VIDEO VT1
VIDEO VT2
VIDEO TV1
GND VT3
C2 560P
C1 560P
L3 3.3
L2 3.3
R2 47K
R1 47K
RF CONV
RF VIDEO IN 1
GND 2
RF AUDIO IN 3
RF 12V 4
UNSW 12V 5
D701
D702
TP804 PB 12V
L9 0.033
C34 100P
L7 3.3
AT1 GND
TA2 AUDIO
From/To 0 3 MAIN(AUDIO) (Page 3–25)
L701 10
Q702
L703 10
Q702 2SB810HJ
R703 39K
R704 1K
D705
J701 REMOTE PAUSE
From/To 0 3 MAIN(MECHACON) (Page 3–29,3–30)
EG Model only
VPT 5V TM1
VPT VIDEO MT1
GND MT3
VIDEO MT4
S DATA MT6
S CLOCK MT2
REMOTE PAUSE MT5
REMOTE TM2
VPT 5V
UNSW 12V
RT1 UNSW 12V
RT2 VPT 5V
RT3 SWD 12V
From/To 0 3 MAIN(P SUPPLY) (Page 3–18)
0 3 MAIN(TERMINAL)
5
4
3
2
1
A
B
C
D

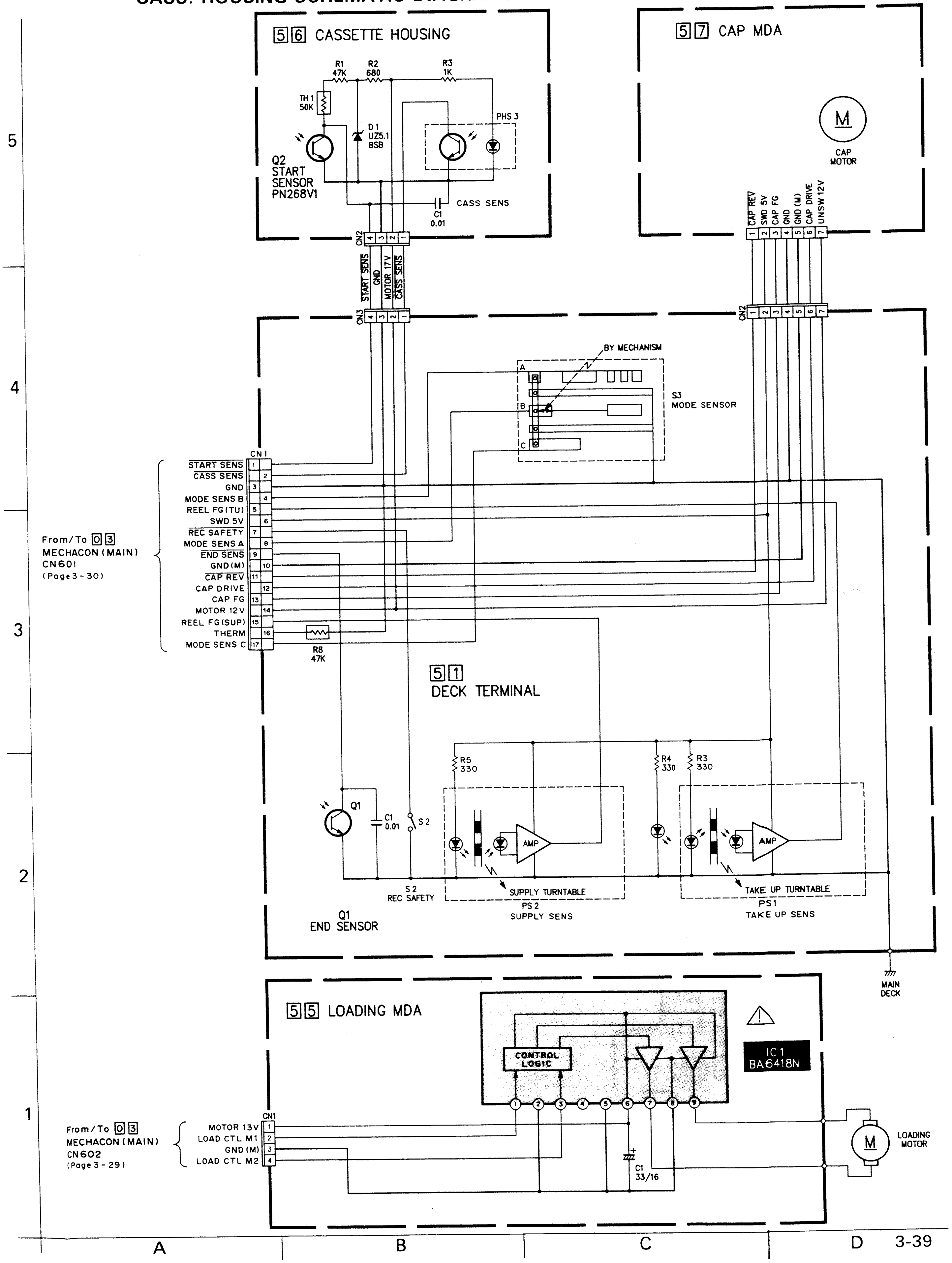
3.20 TERMINAL CIRCUIT BOARD

• MAIN board assembly is located ih page 41,42

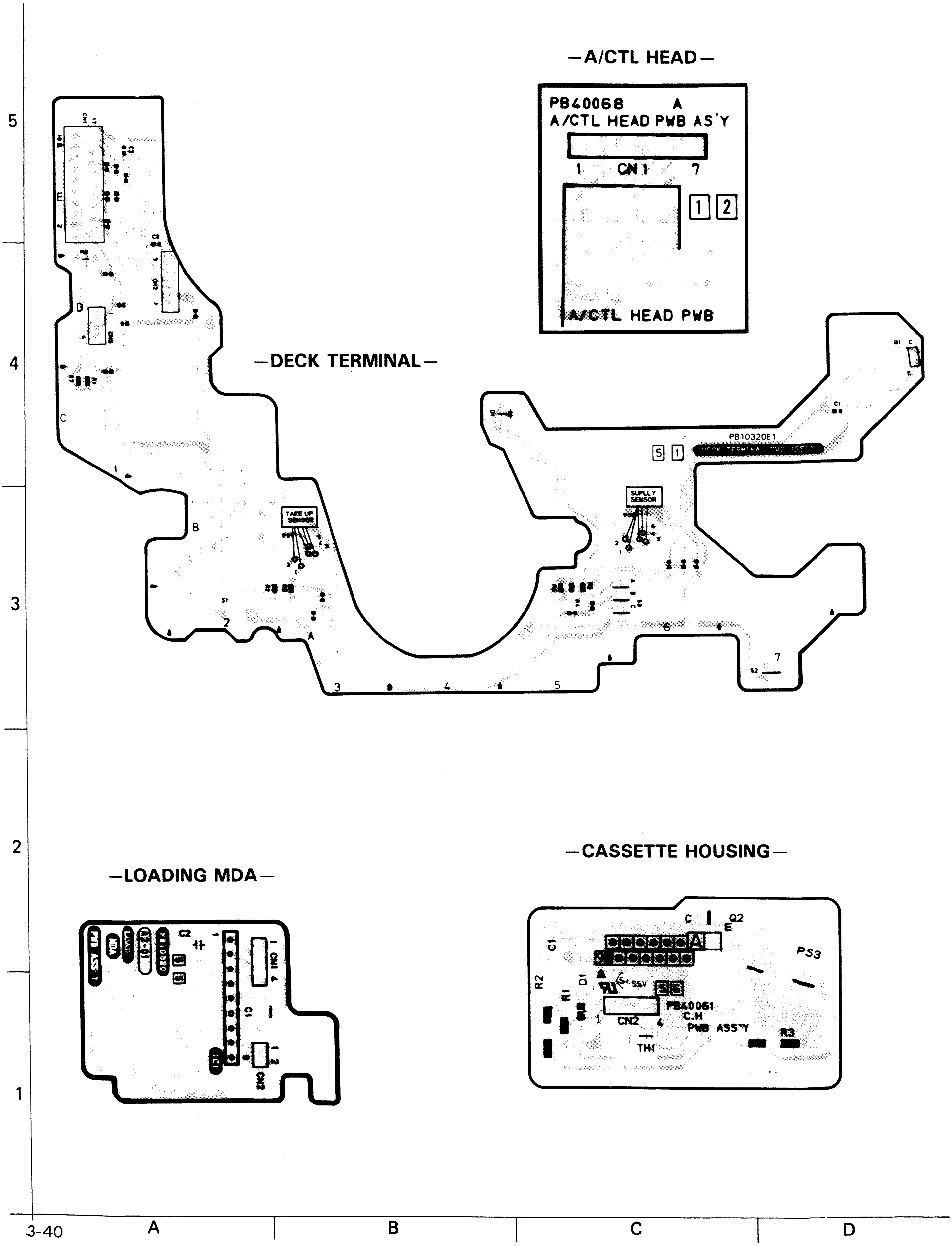

MAIN BOARD
TERMINAL


H
G
F
E
D
C
B
8
9
J6
L701
L703
L702
R703
R704
D705
C701
RF CONVERTER
TP802
SW 12V
C803
J5B
J5C
J702
J703 DIN CONNE
TH801
TP803
T.DATA
CN604
C704
D701
D702
R642
R651
R652
R641
CN601
J1
R251
J701 AV/IN OUT
TP801
BIAS (+)
CN1
R32
R30
C14
C15
C31
C25
E
F
G
H

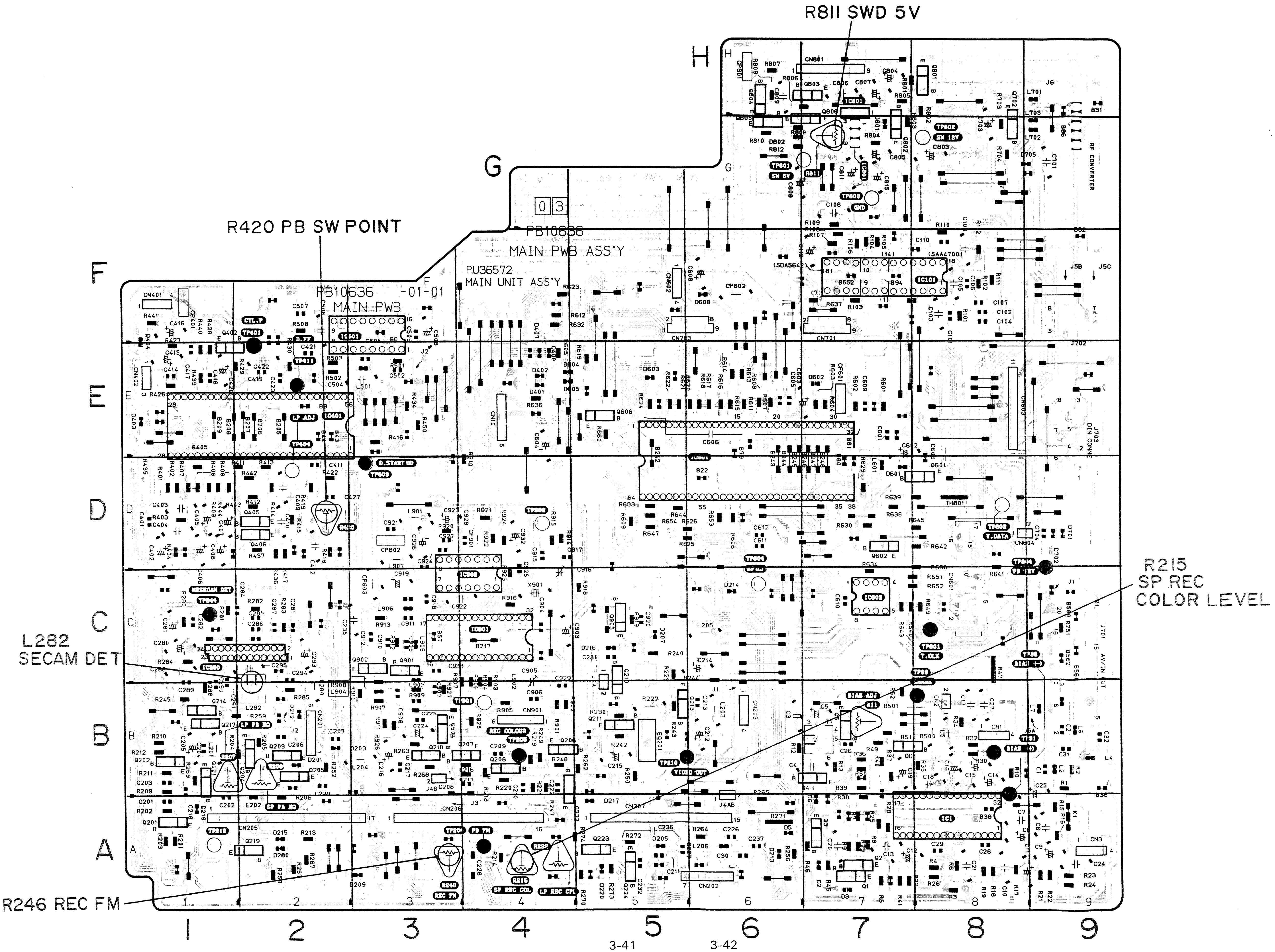
3.21 DECK TERMINAL, MODE MOTOR, CAPSTAN MDA AND CASS. HOUSING SCHEMATIC DIAGRAMS


5 6 CASSETTE HOUSING
R1 47K
R2 680
R3 1K
TH 1 50K
D 1 UZ5.1 BSB
PHS 3
Q2 START SENSOR PN268V1
C1 0.01
CASS SENS
CN2
START SENS
GND
MOTOR 17V
CASS SENS
CN3
5 7 CAP MDA
M
CAP MOTOR
CAP REV
SWD 5V
CAP FG
GND
GND (M)
CAP DRIVE
UNSW 12V
CN2
BY MECHANISM
S3 MODE SENSOR
A
B
C
CN1
START SENS
CASS SENS
GND
MODE SENS B
REEL FG (TU)
SWD 5V
REC SAFETY
MODE SENS A
END SENS
GND (M)
CAP REV
CAP DRIVE
CAP FG
MOTOR 12V
REEL FG (SUP)
THERM
MODE SENS C
From/To 0 3 MECHACON (MAIN) CN601 (Page 3-30)
R8 47K
5 1 DECK TERMINAL
R5 330
R4 330
R3 330
Q1
C1 0.01
S 2
AMP
AMP
S 2 REC SAFETY
SUPPLY TURNTABLE
PS 2 SUPPLY SENS
TAKE UP TURNTABLE
PS1 TAKE UP SENS
Q1 END SENSOR
MAIN DECK
5 5 LOADING MDA
CONTROL LOGIC
IC 1 BA6418N
CN1
MOTOR 13V
LOAD CTL M1
GND (M)
LOAD CTL M2
From/To 0 3 MECHACON (MAIN) CN602 (Page 3-29)
C1 33/16
M
LOADING MOTOR
5
4
3
2
1
A
B
C
D

3.22 DECK TERMINAL, LOADING MDA, CASS. HOUSING AND A/CTL HEAD CIRCUIT BOARDS


—A/CTL HEAD—
PB40068 A
A/CTL HEAD PWB AS'Y
1 CN1 7
1 2
A/CTL HEAD PWB
—DECK TERMINAL—
TAKE UP SENSOR
SUPLLY SENSOR
PB10320E1
5 1
DECK TERMINAL PWB ASS'Y
Q1 C E
C1
E
D
C
B
A
S1
S2
1
2
3
4
5
6
7
—LOADING MDA—
PWB ASS'Y
MDA
LOAD
A2-01
PB10320
C2
CN1
C1
IC1
CN2
—CASSETTE HOUSING—
C Q2 E
A
C1
R2
D1
R1
5 6
PB40061
C.H
PWB ASS'Y
CN2
1 4
TH1
PS3
R3
5
4
3
2
1
A
B
C
D

3.23 MAIN CIRCUIT BOARD



R811 SWD 5V

R420 PB SW POINT

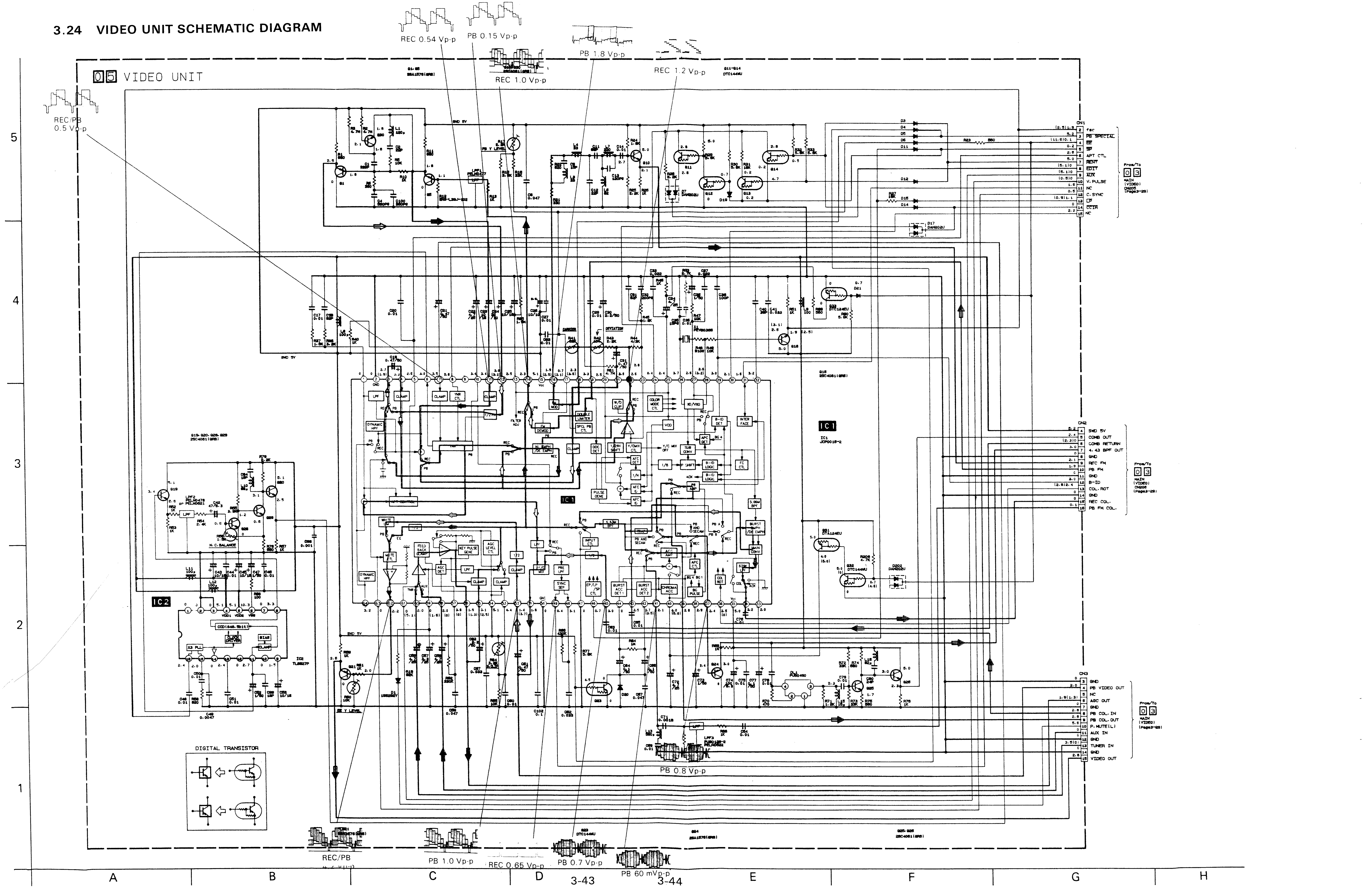
L282 SECAM DET

R215 SP REC COLOR LEVEL

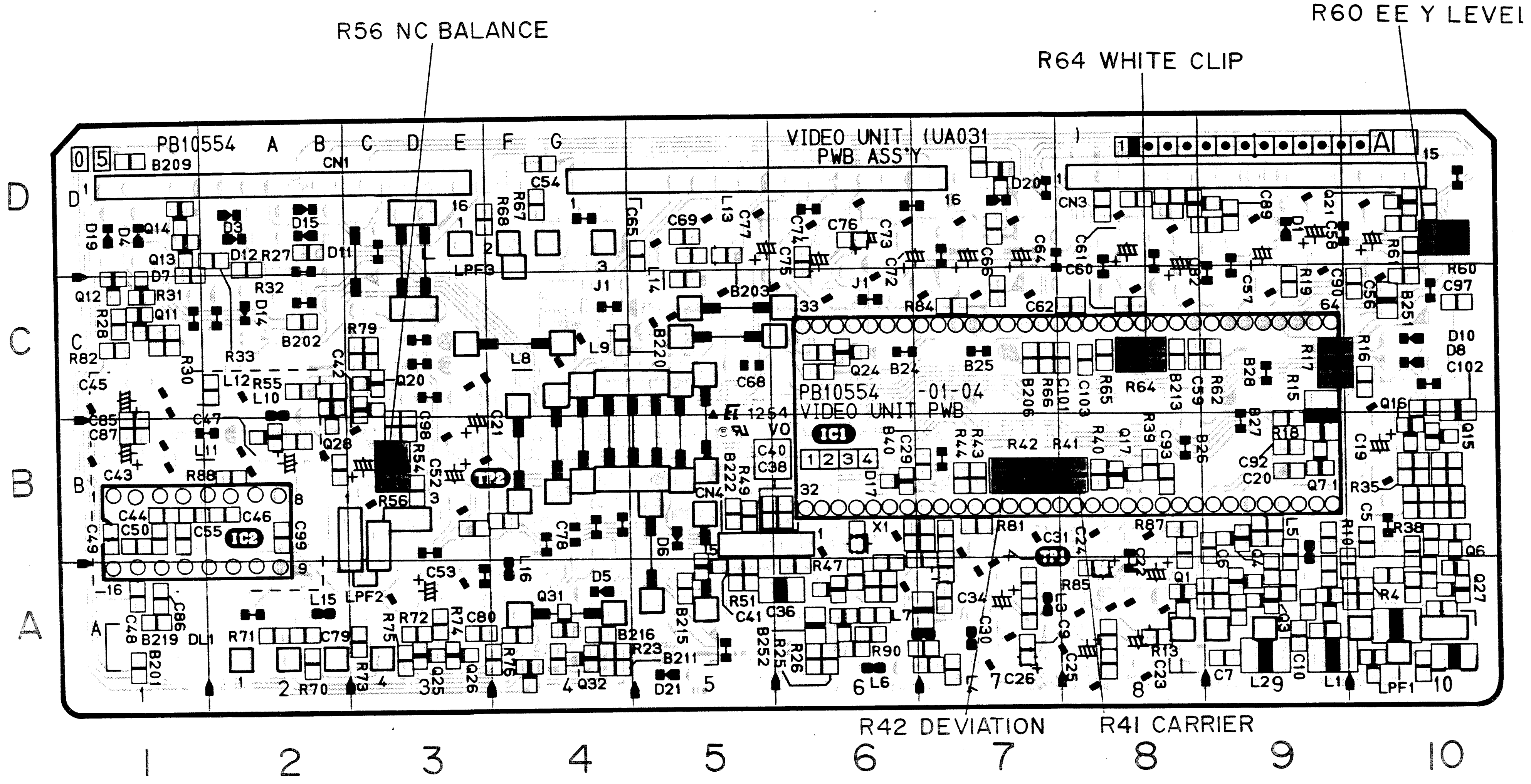
R246 REC FM

PB10636 MAIN PWB ASS'Y
PU36572 MAIN UNIT ASS'Y
PB10636 -01-01 MAIN PWB
A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9
RF CONVERTER
J703 DIN CONNE
J701 AV/IN OUT
IC101
IC401
IC501
IC801
IC901
IC1
CN801
CN701
CN703
CN205
CN206
CN207
CN202

3.24 VIDEO UNIT SCHEMATIC DIAGRAM


REC 0.54 Vp-p
PB 0.15 Vp-p
PB 1.8 Vp-p
REC 1.2 Vp-p
REC 1.0 Vp-p
REC/PB
0.5 Vp-p
05 VIDEO UNIT
IC1
IC1
JCP0018-2
IC2
IC2
TL8827P
SWD 5V
PB Y LEVEL
EE Y LEVEL
N.C. BALANCE
CARRIER
DEVIATION
DIGITAL TRANSISTOR
CN1
2 fsc
3 PB SPECIAL
4 EE
5 SP
6 APT CTL
7 RENT
8 EDIT
9 AUX
10 V. PULSE
11 NC
12 C. SYNC
13 CP
14 CCIR
15 NC
From/To
03
MAIN
(VIDEO)
CN205
(Page3-29)
CN2
4 SWD 5V
5 COMB OUT
6 COMB RETURN
7 4.43 BPF OUT
8 GND
9 REC FM
10 PB FM
11 GND
12 B-ID
13 COL. ROT
14 GND
15 REC COL.
16 PB FM COL.
From/To
03
MAIN
(VIDEO)
CN206
(Page3-29)
CN3
3 GND
4 PB VIDEO OUT
5 NC
6 AGC OUT
7 GND
8 PB COL. IN
9 PB COL. OUT
10 P. MUTE(L)
11 AUX IN
12 GND
13 TUNER IN
14 GND
15 VIDEO OUT
From/To
03
MAIN
(VIDEO)
(Page3-29)
PB 0.8 Vp-p
REC/PB
PB 1.0 Vp-p
REC 0.65 Vp-p
PB 0.7 Vp-p
PB 60 mVp-p
A
B
C
D
E
F
G
H
1
2
3
4
5

3.25 VIDEO UNIT CIRCUIT BOARD



IC

REF. No.	LOCATION
IC1	B 9
IC2	B 1

TRANSISTOR

REF. No.	LOCATION
Q1	A 8
Q3	A 9
Q4	B 9
Q5	A 10
Q6	B 10
Q7	B 9
Q10	A 6
Q11	C 1
Q12	D 1
Q13	D 1
Q14	D 1
Q15	C 10
Q16	C 10
Q17	B 8
Q18	B 5
Q19	C 2
Q20	C 3
Q21	D 10
Q22	D 9
Q23	D 7
Q24	C 6
Q25	A 3
Q26	A 3
Q27	A 10
Q28	C 2
Q29	C 3
Q30	B 9
Q31	A 4
Q32	A 4

DIODE

REF. No.	LOCATION
D1	D 9
D3	D 2
D4	D 1
D5	A 4
D6	B 5
D7	D 1
D8	C 10
D10	C 10
D11	D 2
D12	D 2
D14	D 2
D15	D 2
D17	B 6
D19	D 1
D20	D 7
D202	A 4

COIL

REF. No.	LOCATION
L1	A 9
L2	B 9
L2	A 9
L3	A 7
L4	A 7
L6	A 6
L7	A 6
L8	C 4
L9	C 4
L10	C 2
L11	B 1
L12	C 1
L13	D 5
L14	C 5
L15	A 2
L16	A 4

OTHER

REF. No.	LOCATION
LPF1	A 9
LPF2	B 3
LPF3	D 3

RESISTOR

REF. No.	LOCATION
R1	B 8
R2	A 9
R3	A 9
R4	A 10
R5	A 9
R6	B 9
R7	B 10
R8	A 10
R9	A 9
R10	B 10
R11	A 10
R12	A 10
R13	A 8
R14	B 10
R15	C 9
R16	C 10
R17	C 9
R18	C 9
R19	D 9
R20	A 9
R21	B 7
R22	A 7
R23	A 4
R24	A 6
R25	A 6
R26	A 6
R27	D 2
R28	C 1
R29	C 1
R30	C 1
R31	D 1
R32	D 2
R33	D 2
R34	B 10
R35	B 10
R36	C 10
R37	B 10
R38	B 10
R39	B 8
R40	B 8
R41	B 8
R42	B 7
R43	B 7
R44	B 7
R45	B 7
R46	B 7
R47	B 6
R48	B 6
R49	B 5
R50	B 4
R51	B 5
R52	B 2
R53	C 2
R54	B 3
R55	C 2
R56	B 3
R57	C 3
R58	B 1
R59	D 10
R60	D 10
R61	D 10
R62	C 9
R63	D 9
R64	C 8
R65	C 8
R66	C 7
R67	D 4
R68	D 4
R69	C 6
R70	A 2
R71	A 2
R72	A 3
R73	A 3
R74	A 3
R75	A 3
R76	A 4
R77	D 7
R78	C 2
R79	C 3
R80	D 10
R81	B 7
R82	C 1
R83	A 6
R84	C 7
R85	B 8
R87	B 8
R208	A 4

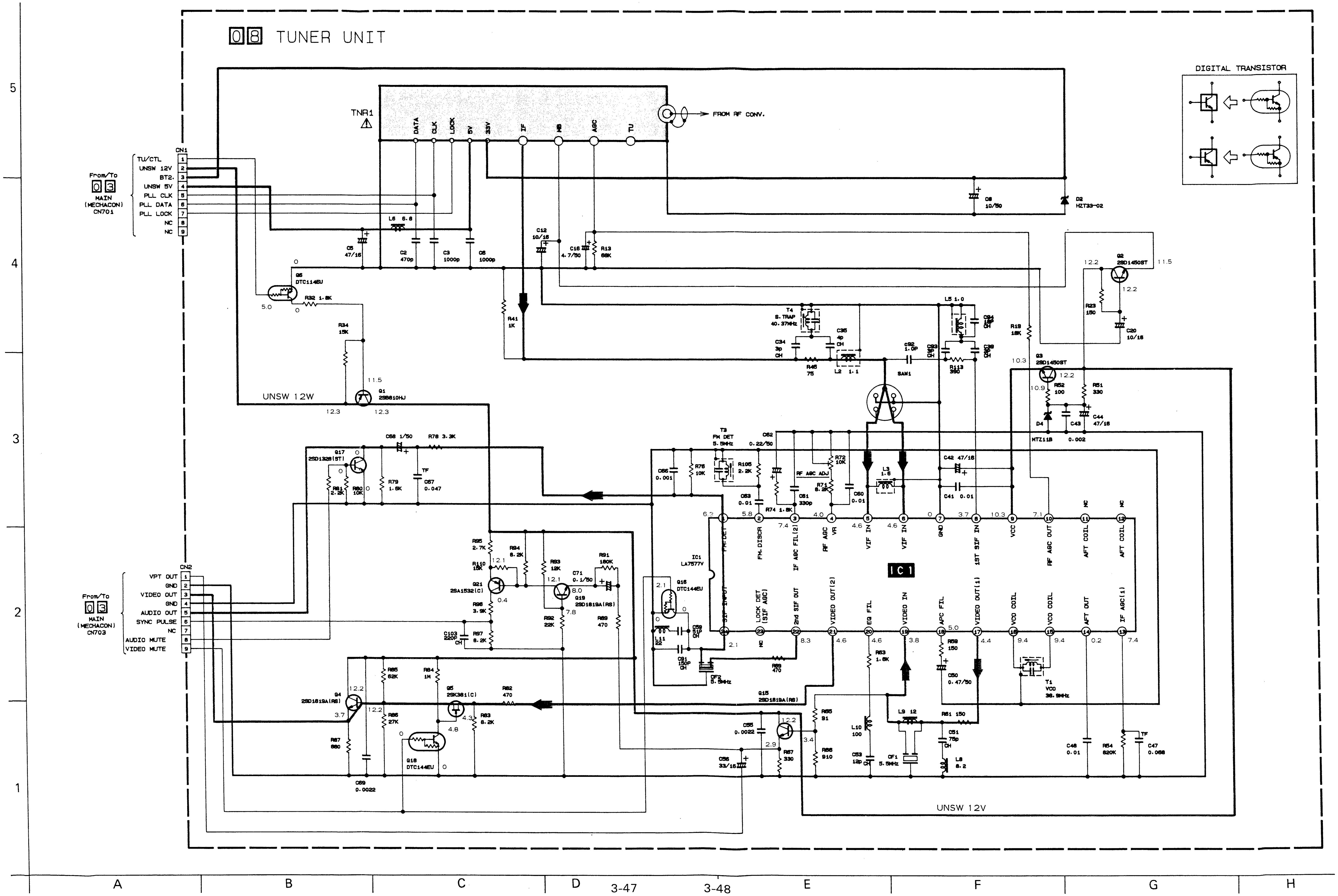
CAPACITOR

REF. No.	LOCATION
C1	B 9
C2	A 9
C3	B 9
C4	B 9
C5	B 10
C6	B 9
C7	A 9
C8	A 7
C9	A 7
C10	A 9
C11	A 7
C12	A 7
C13	A 7
C14	A 6
C15	B 10
C16	B 10
C17	B 10
C18	B 10
C19	B 10
C20	B 9
C21	C 3
C22	A 8
C23	A 8
C24	A 8
C25	A 8
C26	A 7
C27	A 8
C29	B 7
C30	A 7
C31	B 7
C32	B 7
C33	B 7
C34	B 7
C35	A 6
C36	A 6
C37	B 6
C38	B 6
C40	B 6
C41	B 5
C42	C 3
C43	B 1
C44	B 1
C45	C 1
C46	B 2
C47	B 2
C48	A 1
C49	B 1
C50	B 1
C51	B 1
C52	B 3
C53	A 3
C54	D 4
C55	B 1
C56	D 10
C57	D 9
C58	D 9
C59	C 8
C60	C 8
C61	D 8
C62	C 8
C63	D 7
C64	D 7
C65	D 5
C66	D 7
C67	D 7
C68	C 5
C69	D 5
C70	D 5
C71	D 5
C72	D 7
C73	D 6
C74	D 6
C75	D 6
C76	D 6
C77	D 5
C78	B 4
C79	A 2
C80	A 3
C82	D 8
C83	C 2
C84	C 3
C85	C 1
C86	A 1
C87	C 1
C89	D 9
C90	D 10
C91	B 7
C92	B 9
C93	B 8
C94	B 10
C95	B 9
C96	B 6
C97	C 10
C98	C 3
C99	B 2
C100	B 9
C101	C 8
C102	C 10
C103	C 8
C104	D 10

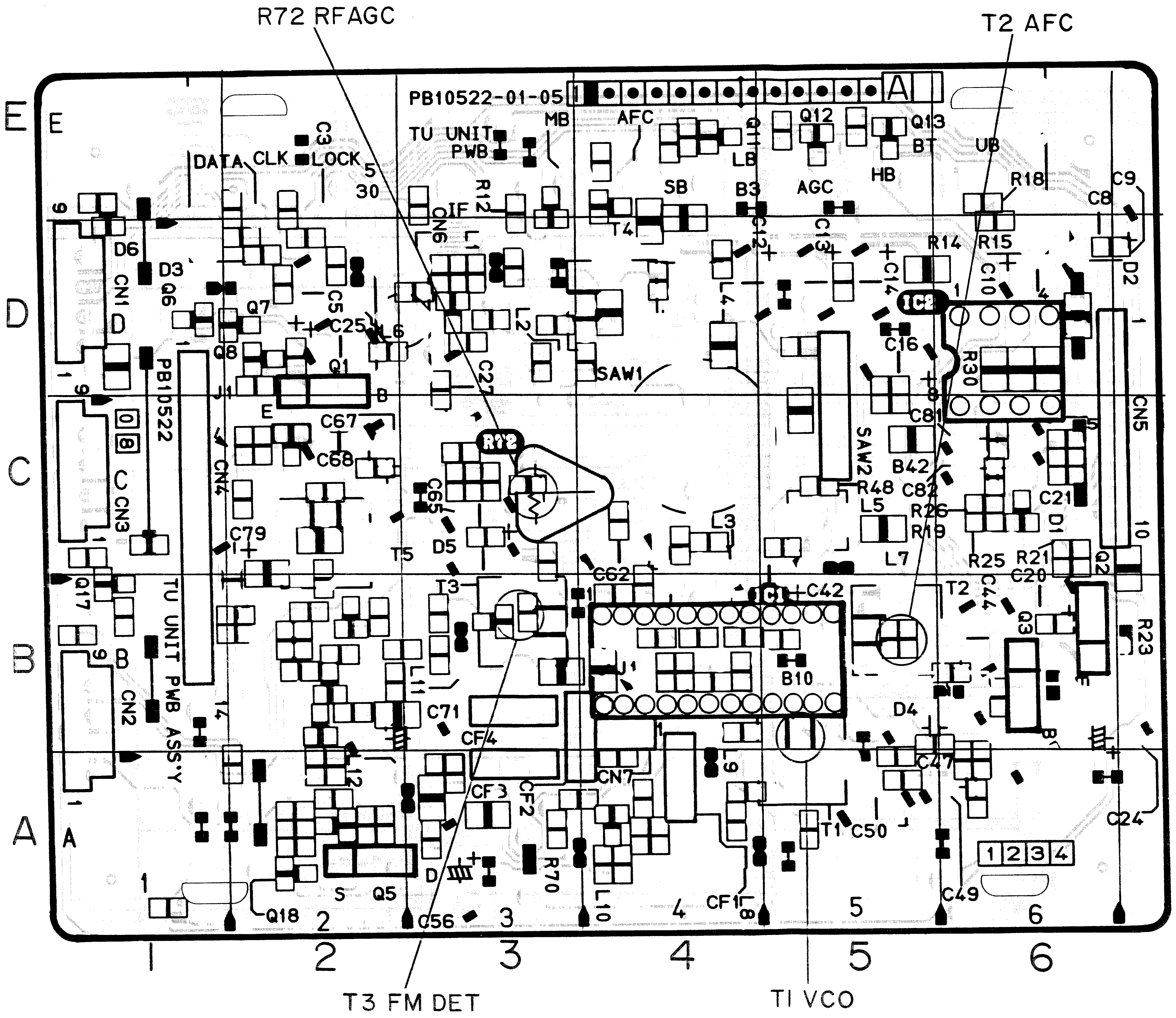
CONNECTOR

REF. No.	LOCATION
CN3	D 8
CN4	B 6

3.26 TUNER UNIT SCHEMATIC DIAGRAM


08 TUNER UNIT
TNR1
DATA
CLK
LOCK
5V
33V
IF
MB
AGC
TU
FROM RF CONV.
DIGITAL TRANSISTOR
CN1
TU/CTL 1
UNSW 12V 2
BT2. 3
UNSW 5V 4
PLL CLK 5
PLL DATA 6
PLL LOCK 7
NC 8
NC 9
From/To 03 MAIN (MECHACON) CN701
L6 6.8
C5 47/16
C2 470p
C3 1000p
C8 1000p
C12 10/16
C16 4.7/50
R13 68K
C8 10/50
D2 HZT33-02
Q6 DTC114EU
R32 1.8K
R34 15K
R41 1K
Q1 2SB810HJ
UNSW 12W
T4 S.TRAP 40.37MHz
C34 3p CH
C35 4p CH
R46 75
L2 1.1
C92 1.0P
SAW1
L5 1.0
C84
C93
C36
R113 390
R19 18K
Q2 2SD1450ST
R23 150
C20 10/16
Q3 2SD1450ST
R52 100
R51 330
D4 MTZ11B
C43 0.002
C44 47/16
Q17 2SD1328(ST)
C68 1/50
R78 3.3K
R81 2.2K
R80 10K
R79 1.8K
C67 0.047
TF
T3 FM DET 5.5MHz
C62 0.22/50
C66 0.001
R76 10K
R105 2.2K
C63 0.01
R74 1.8K
C61 330p
RF AGC ADJ
R71 8.2K
R72 10K
C60 0.01
L3 1.5
C42 47/16
C41 0.01
IC1 LA7577V
IC 1
FM. DET
FM. DISCR
IF AGC FIL(2)
RF AGC VR
VIF IN
VIF IN
GND
1ST SIF IN
VCC
RF AGC OUT
AFT COIL
AFT COIL
SIF INPUT
LOCK DET (SIF AGC)
2nd SIF OUT
VIDEO OUT(2)
EQ FIL
VIDEO IN
APC FIL
VIDEO OUT(1)
VCO COIL
VCO COIL
AFT OUT
IF AGC(1)
NC
CN2
VPT OUT 1
GND 2
VIDEO OUT 3
GND 4
AUDIO OUT 5
SYNC PULSE 6
NC 7
AUDIO MUTE 8
VIDEO MUTE 9
From/To 03 MAIN (MECHACON) CN703
R95 2.7K
R94 8.2K
R110 15K
R93 12K
R91 180K
C71 0.1/50
Q21 2SA1532(C)
Q19 2SD1819A(RS)
R96 3.9K
R92 22K
R89 470
C103 220P CH
R97 8.2K
Q16 DTC144EU
L11 22
C59 51P CH
C91 150P CH
CF2 5.5MHz
R88 470
R59 150
C50 0.47/50
T1 VCO 38.9MHz
Q15 2SD1819A(RS)
R65 62K
R84 1M
Q5 2SK381(C)
R82 470
Q4 2SD1819A(RS)
R86 27K
R83 8.2K
R87 680
Q18 DTC144EU
C69 0.0022
C55 0.0022
C56 33/16
R57 330
R85 91
R86 910
R53 1.8K
L10 100
C53 12p CH
L9 12
CF1 5.5MHz
R61 150
C51 75p CH
L8 8.2
C48 0.01
R54 820K
C47 0.068
UNSW 12V
A
B
C
D
E
F
G
H
1
2
3
4
5

3.27 TUNER UNIT CIRCUIT BOARD


R72 RFAGC
T2 AFC
PB10522-01-05
TU UNIT PWB
MB
AFC
Q12
Q13
BT
UB
LB
SB
B3
AGC
HB
R18
C9
C8
DATA
CLK
LOCK
C3
30
IF
R12
CN6
T4
C12
C13
R14
R15
C10
C14
D2
D6
D3
Q6
CN1
Q7
C5
C25
L6
Q8
Q1
L1
C27
L2
SAW1
L4
IC2
C16
R30
CN5
PB10522
C67
C68
CN4
R72
C65
D5
T5
SAW2
B42
R48
C82
L5
R26
R19
L3
C21
D1
C79
CN3
Q17
C62
T3
IC1
C42
L7
R25
R21
C20
T2
C44
Q2
Q3
R23
TU UNIT PWB ASS'Y
CN2
L11
B10
D4
C71
CF4
L9
C47
L12
CF3
CF2
CN7
T1
C50
C24
Q5
R70
L10
CF1
L8
C49
Q18
C56
S
D
1 2 3 4
A
B
C
D
E
1
2
3
4
5
6
T3 FM DET
TI VCO

REF No.	LOCATION
IC	
IC1	B 3
IC2	D 5

REF No.	LOCATION
TRANSISTOR	
Q1	D 2
Q2	B 6
Q3	B 6
Q4	A 2
Q5	A 2
Q6	D 1
Q7	D 1
Q8	D 1
Q10	E 3
Q11	E 4
Q12	E 5
Q13	E 5
Q14	D 2
Q15	A 3
Q16	B 3
Q17	B 1
Q18	A 2
Q19	B 2
Q20	B 2
Q21	B 2
Q22	C 2
Q23	C 6
Q25	E 3

REF No.	LOCATION
DIODE	
D1	C 6
D2	D 6
D3	D 1
D4	B 5
D5	C 3
D6	E 1
L1	D 3
L2	C 3

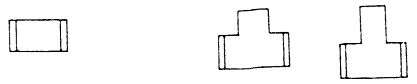
REF No.	LOCATION
COIL	
L1	D 3
L2	C 3
L3	B 4
L4	D 4
L5	C 4
L6	D 2
L7	C 4
L8	A 4
L9	A 4
L10	A 3
L11	B 3
L12	A 2

REF No.	LOCATION
RESISTOR	
R1	D 2
R2	E 1
R3	E 2
R4	E 4
R5	E 4
R6	E 5
R7	E 3
R10	E 4
R11	D 4
R12	E 3
R13	D 5
R14	D 5
R15	D 6
R17	D 6
R18	E 5
R19	C 5
R20	D 5
R21	C 6
R23	B 6
R24	C 6
R25	C 5
R26	C 5
R27	C 6
R28	C 6
R29	C 6

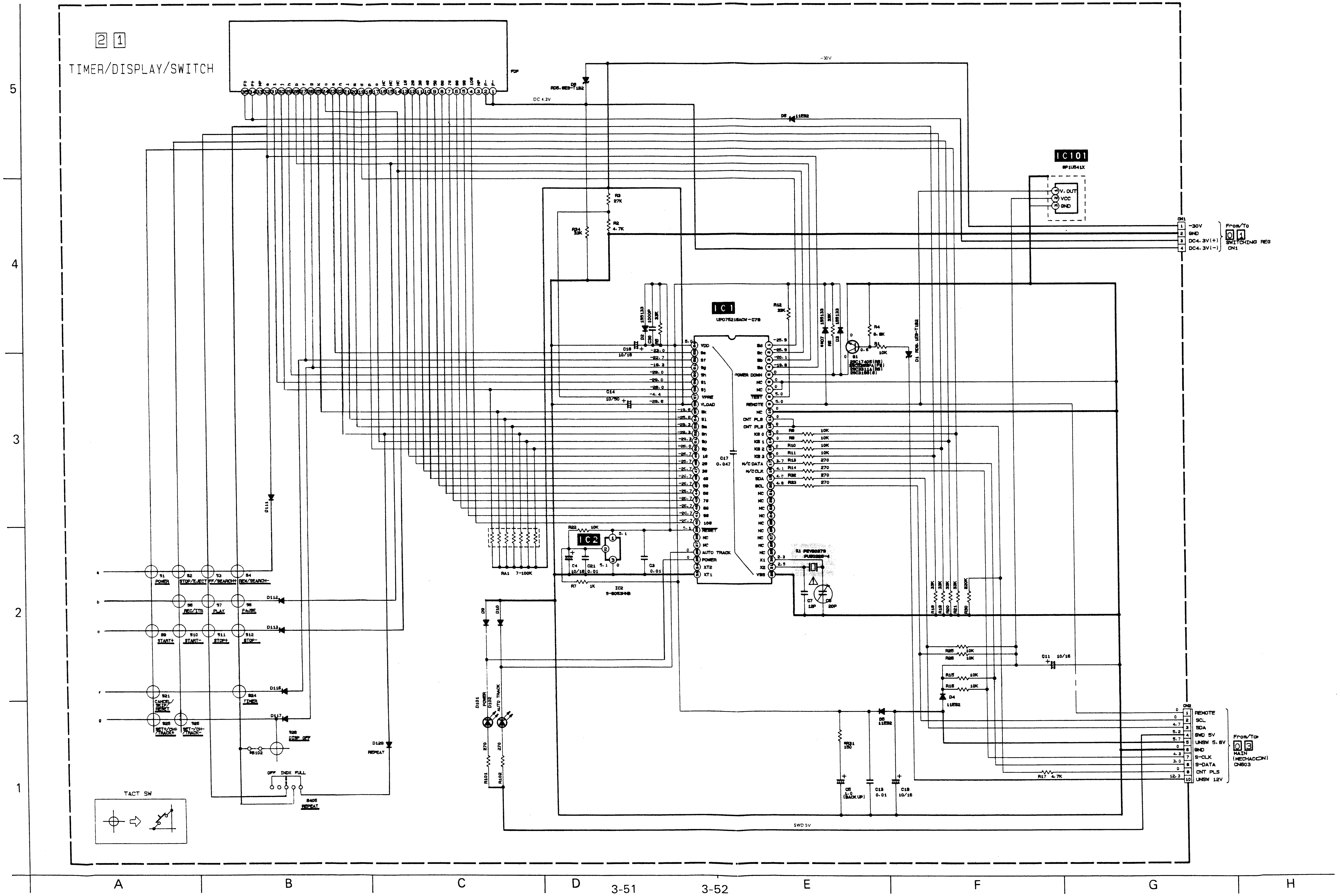
REF No.	LOCATION
RESISTOR	
R30	D 6
R31	D 6
R32	D 2
R33	D 2
R34	D 1
R41	D 3
R42	D 3
R43	D 3
R44	D 2
R45	D 3
R46	C 4
R47	D 4
R48	C 5
R51	B 6
R52	B 6
R53	B 5
R54	B 5
R55	A 5
R56	A 5
R57	A 5
R58	A 5
R59	B 4
R60	A 4
R61	A 4
R62	B 4
R63	A 3
R64	B 4
R65	A 4
R66	A 4
R67	A 3
R68	B 4
R69	A 3
R70	A 3
R71	C 3
R72	C 3
R73	C 3
R74	B 4
R75	C 3
R76	C 2
R77	C 3
R78	C 3

REF No.	LOCATION
RESISTOR	
R79	C 2
R80	B 1
R81	C 1
R82	A 2
R83	A 2
R84	A 2
R85	A 2
R86	A 2
R87	A 2
R89	A 2
R90	A 2
R91	B 2
R92	A 2
R93	B 2
R94	B 2
R95	B 2
R96	B 2
R97	B 2
R98	C 1
R99	C 2
R100	B 2
R101	C 1
R102	B 1
R105	B 3
R113	C

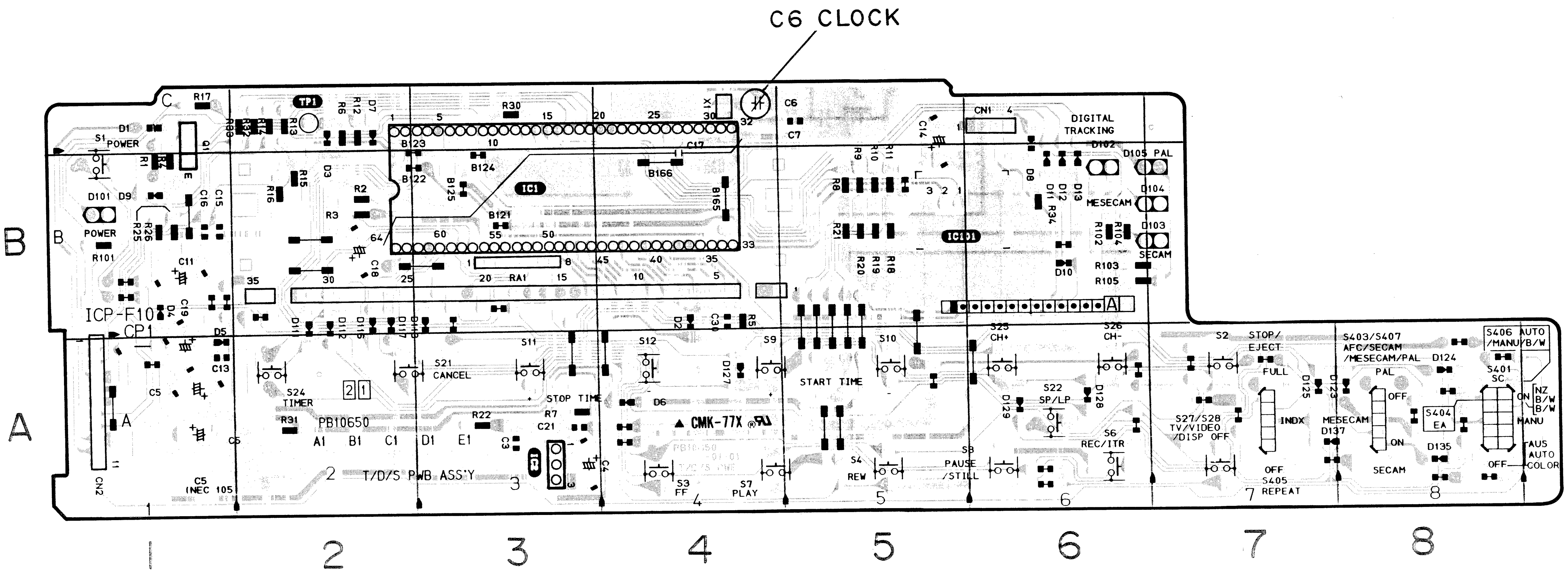
Note: Double edging indicates not used in this model.
Examples; Resistor, Capacitor, Transistor, DIODE



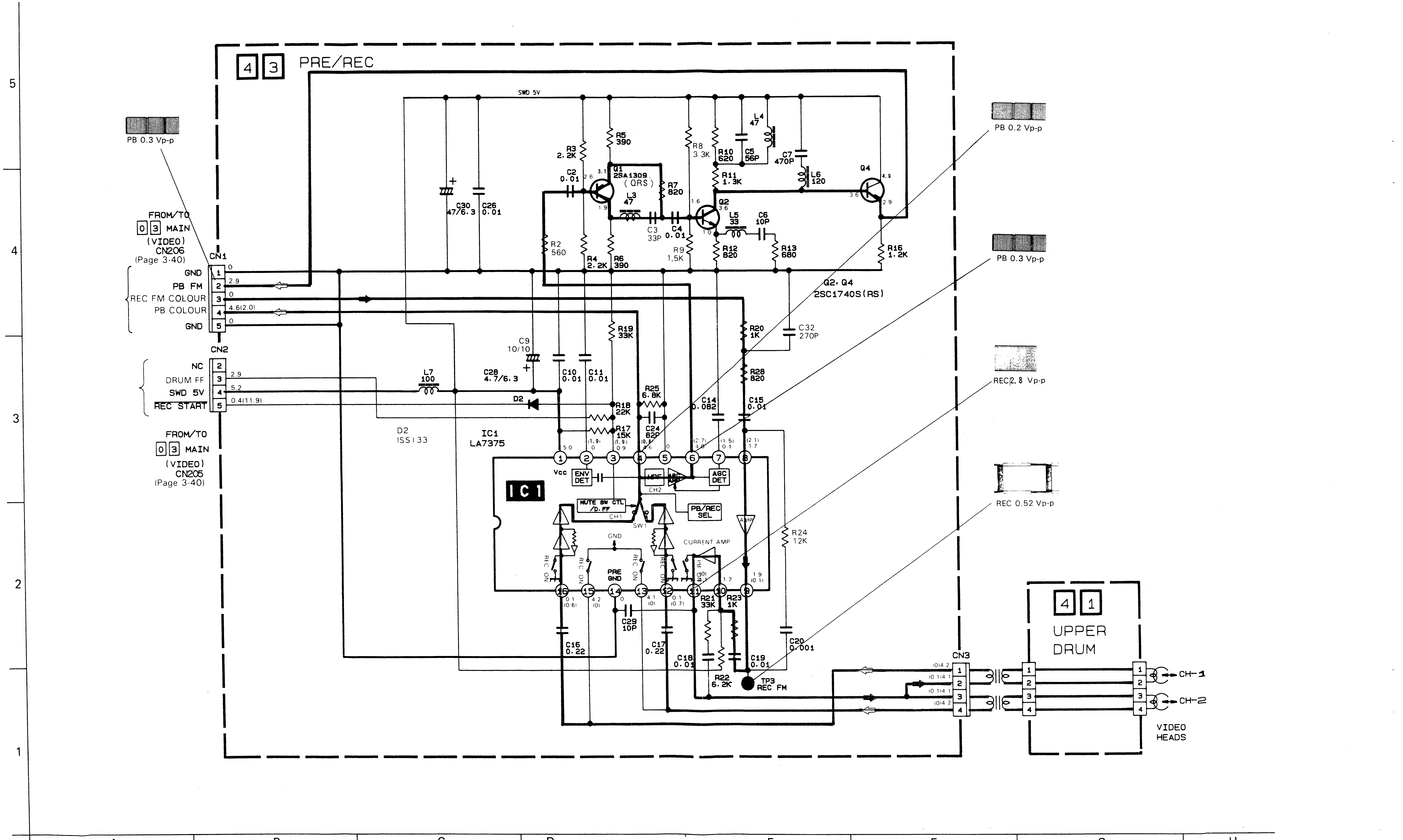
3.28 TIMER/DISPLAY/SWITCH SCHEMATIC DIAGRAM


2 1
TIMER/DISPLAY/SWITCH
FDP
D8 RD5.6EB-T1B2
DC 4.3V
-30V
D5 1SS133
IC101
SP1U541X
V.OUT
VCC
GND
CN1
1 -30V
2 GND
3 DC4.3V(+)
4 DC4.3V(-)
From/To
0 1
SWITCHING REG
CN1
R3 27K
R2 4.7K
R34 33K
IC1
UPD75216ACW-C78
VDD
VPRE
VLOAD
RESET
AUTO TRACK
POWER
XT2
XT1
POWER DOWN
TEST
REMOTE
CNT PLS
KS 0
KS 1
KS 2
KS 3
M/C DATA
M/C CLK
SDA
SCL
NC
X1
X2
VSS
R12 33K
D7 1SS133
R5 33K
D3 1SS133
Q1
2SC1740S(RS)
2SC536SPA(FG)
2SC3311A(RS)
2SC3198(G)
R4 6.8K
R1 10K
D1 RD9.1EB-T1B2
R8 10K
R9 10K
R10 10K
R11 10K
R13 270
R14 270
R32 270
R33 270
C17 0.047
C18 10/16
C20 1000P
R6 33K
D2 1SS133
C14 10/50
X1 PEV80379 PUS0228-4
C7 12P
C6 20P
R18 33K
R19 33K
R20 33K
R21 33K
R30 220K
R22 10K
IC2
S-8053HNB
C4 10/16
C21 0.01
C3 0.01
R7 1K
RA1 7-100K
D9
D10
D101 POWER
D102 AUTO TRACK
R101 270
R102 270
R25 10K
R26 10K
R15 10K
R16 10K
D4 1SS82
C11 10/16
D6 1SS82
R31 150
C5 1.0 (BACK UP)
C13 0.01
C19 10/16
R17 4.7K
SWD 5V
CN2
1 REMOTE
2 SCL
3 SDA
4 SWD 5V
5 UNSW 5.8V
6 GND
7 S-CLK
8 S-DATA
9 CNT PLS
10 UNSW 12V
From/To
0 3
MAIN
(MECHACON)
CN603
a
b
c
f
g
S1 POWER
S2 STOP/EJECT
S3 FF/SEARCH+
S4 REW/SEARCH-
S6 REC/ITR
S7 PLAY
S8 PAUSE
S9 START+
S10 START-
S11 STOP+
S12 STOP-
S21 CANCEL/SKIP/RESET
S24 TIMER
S25 SET+/CH+/TRACK+
S26 SET-/CH-/TRACK-
S28 DISP OFF
SB102
D111
D112
D113
D116
D117
D129 REPEAT
OFF INDX FULL
S405 REPEAT
TACT SW
1
2
3
4
5
A
B
C
D
E
F
G
H

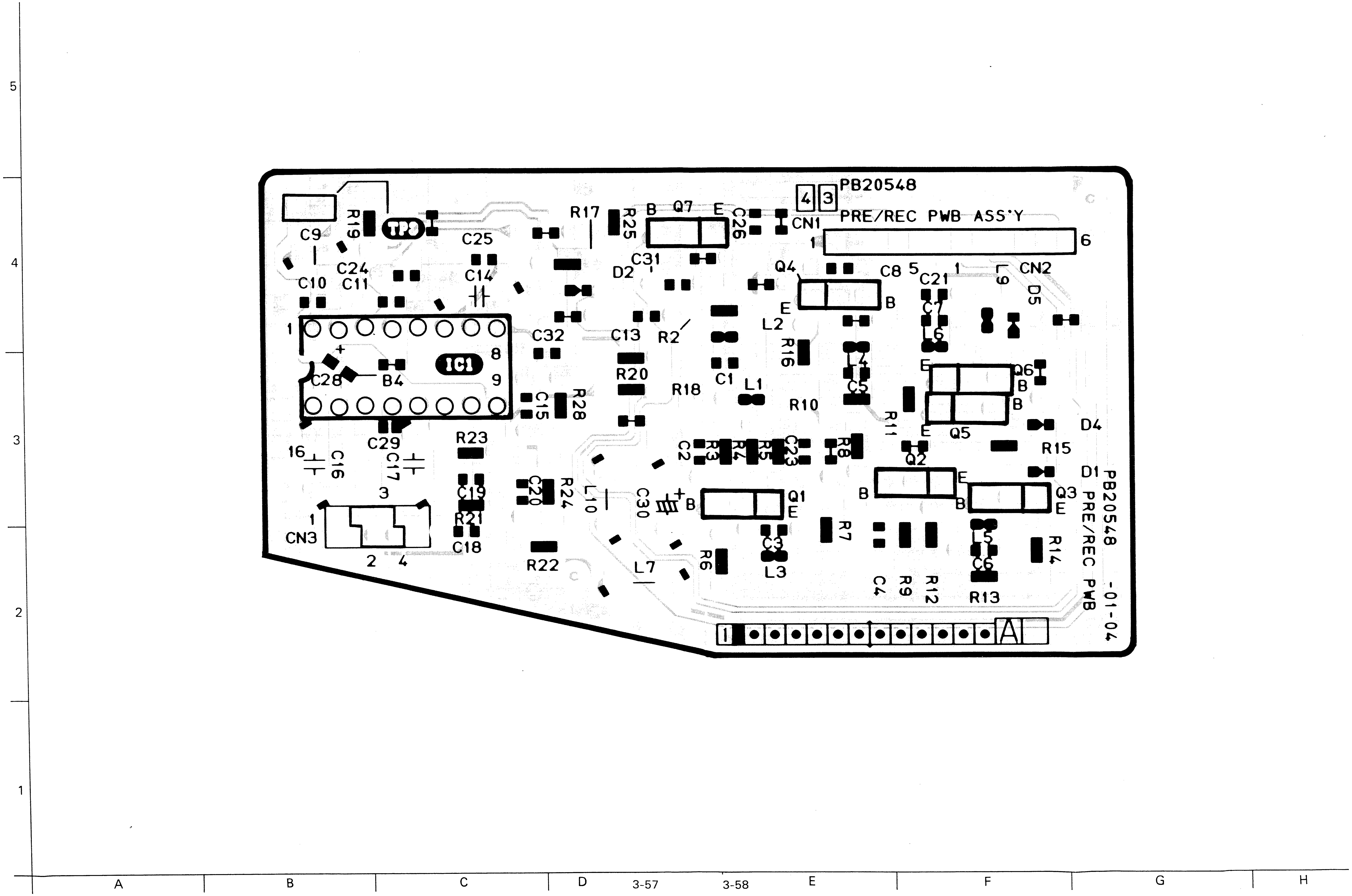
3.29 TIMER/DISPLAY/SWITCH CIRCUIT BOARD


C6 CLOCK
B
A
1
2
3
4
5
6
7
8
S1 POWER
D101
D9
POWER
R101
ICP-F10
CP1
CN2
C5 (NEC 105
TP1
IC1
X1
C6
C7
CN1
DIGITAL TRACKING
D102
D105 PAL
D104
MESECAM
D103
SECAM
IC101
R103
R105
RA1
S24 TIMER
PB10650
A1 B1 C1 D1 E1
S21 CANCEL
S11
STOP TIME
T/D/S PWB ASS'Y
IC3
S12
D6
CMK-77X
S3 FF
S9
S7 PLAY
START TIME
S4 REW
S10
S8 PAUSE /STILL
S25 CH+
S22 SP/LP
S6 REC/ITR
S26 CH-
S2 STOP/ EJECT
S27/S28 TV/VIDEO /DISP OFF
FULL
INDX
OFF S405 REPEAT
S403/S407 AFC/SECAM /MESECAM/PAL
PAL
OFF
MESECAM D137
ON
SECAM
D124
S404 EA
D135
S406 AUTO /MANU B/W
S401 SC
ON
NZ B/W B/W
MANU
AUS AUTO COLOR
OFF

3.30 PRE/REC SCHEMATIC DIAGRAM

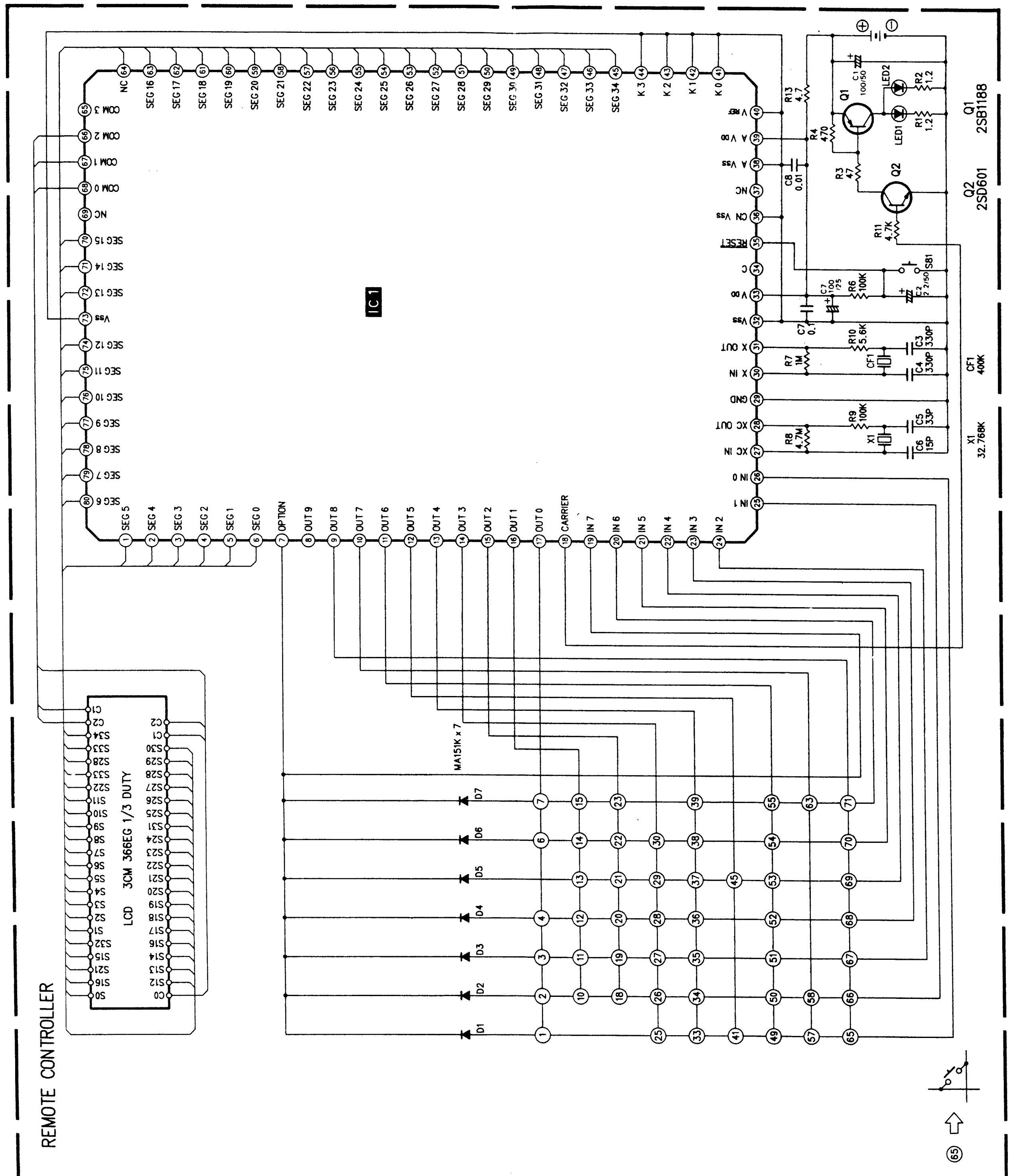

4 3 PRE/REC
SWD 5V
PB 0.3 Vp-p
PB 0.2 Vp-p
PB 0.3 Vp-p
REC 2.8 Vp-p
REC 0.52 Vp-p
FROM/TO
0 3 MAIN
(VIDEO)
CN206
(Page 3-40)
CN1
GND
PB FM
REC FM COLOUR
PB COLOUR
GND
CN2
NC
DRUM FF
SWD 5V
REC START
FROM/TO
0 3 MAIN
(VIDEO)
CN205
(Page 3-40)
R3 2.2K
R5 390
C2 0.01
Q1 2SA1309 (QRS)
L3 47
R7 820
C3 33P
C4 0.01
R8 3.3K
R10 620
C5 56P
L4 47
C7 470P
L6 120
R11 1.3K
Q2
L5 33
C6 10P
Q4
R9 1.5K
R12 820
R13 680
R16 1.2K
C30 47/6.3
C26 0.01
R2 560
R4 2.2K
R6 390
Q2, Q4 2SC1740S(RS)
R19 33K
R20 1K
C32 270P
C9 10/10
C28 4.7/6.3
L7 100
C10 0.01
C11 0.01
R25 6.8K
R28 820
D2
R18 22K
R17 15K
C24 82P
C14 0.082
C15 0.01
D2 ISS133
IC1 LA7375
IC1
Vcc
ENV DET
HPF
AGC DET
CH2
MUTE SW CTL /D.FF
CH1
SW1
PB/REC SEL
AMP
GND
CURRENT AMP
REC ON
PRE GND
R24 12K
C16 0.22
C29 10P
C17 0.22
R21 33K
R23 1K
C18 0.01
R22 6.2K
C19 0.01
TP3 REC FM
C20 0.001
CN3
4 1 UPPER DRUM
CH-1
CH-2
VIDEO HEADS
1
2
3
4
5
A
B
C
D
E
F
G
H

3.31 PRE/REC CIRCUIT BOARD


PB20548
PRE/REC PWB ASS'Y
PB20548 -01-04
PRE/REC PWB
4
3
CN1
CN2
CN3
1
6
5
IC1
TP
8
9
16
2
4
A
Q1
Q2
Q3
Q4
Q5
Q6
Q7
B
E
D1
D2
D4
D5
L1
L2
L3
L4
L5
L6
L7
L9
L10
B4
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
C13
C14
C15
C16
C17
C18
C19
C20
C21
C23
C24
C25
C26
C28
C29
C30
C31
C32
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
R13
R14
R15
R16
R17
R18
R19
R20
R21
R22
R23
R24
R25
R28
A
B
C
D
E
F
G
H

3.32 REMOTE CONTROL SCHEMATIC DIAGRAM

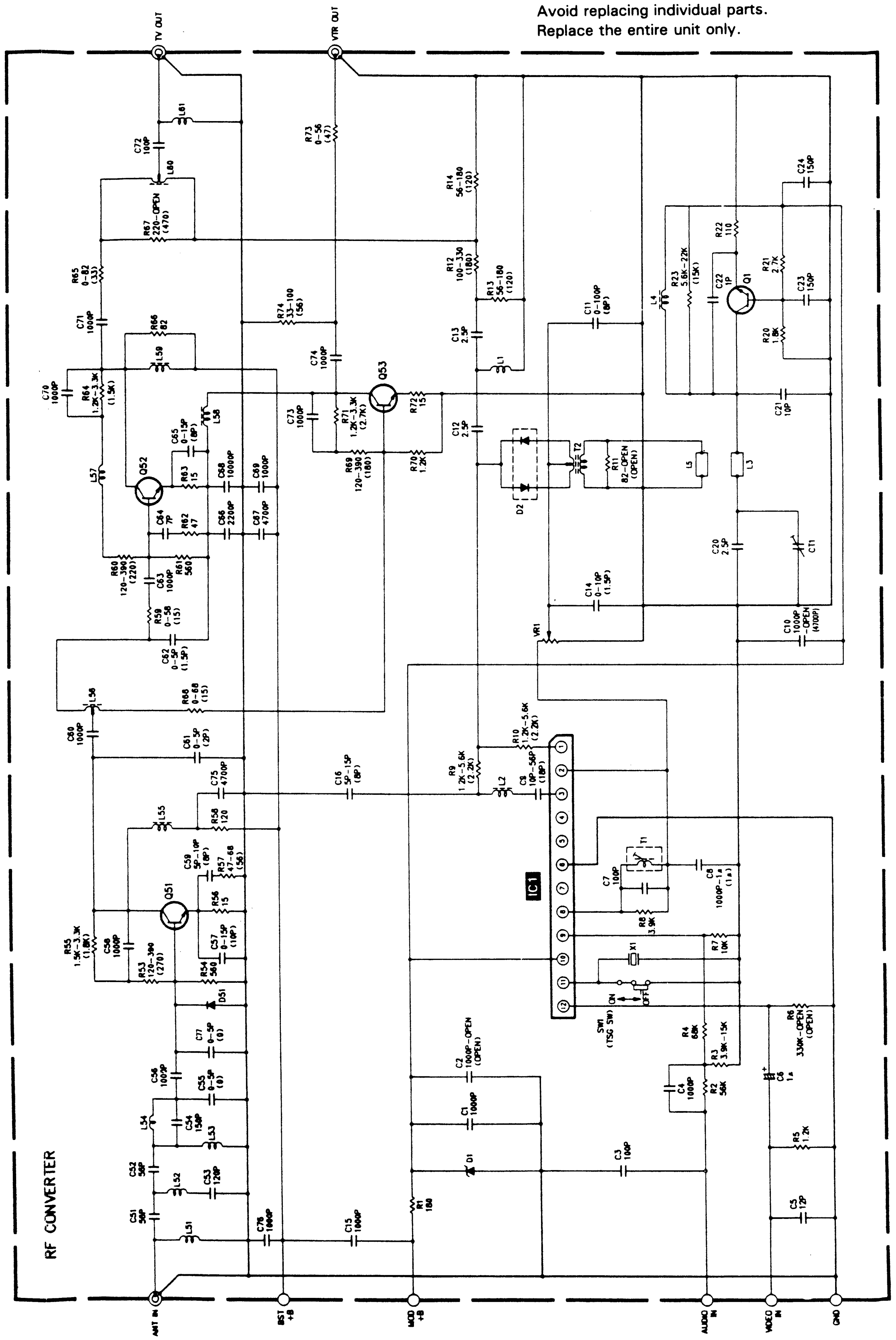
Note:
1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.


REMOTE CONTROLLER
IC1
LCD 3CM 366EG 1/3 DUTY
MA151K x 7
Q1 2SB1188
Q2 2SD601
CF1 400K
X1 32.768K
LED1
LED2
SB1
65

KEY NO.	FUNCTION
1	A/B CODE
2	CLOCK ADJ
3	1
4	6
5	
6	MARK
7	EDIT MODE
8	
9	
10	MEMORY PROGRAM
11	2
12	7
13	CH ∨/CURSOR ←
14	EDIT START
15	EDIT STANDBY
16	
17	
18	MEMORY CANCEL
19	3
20	8
21	CH ∧/CURSOR →
22	INDEX/PAGE −
23	ERASE
24	
25	TRANS
26	PROGRAM/ACCESS
27	4
28	9
29	DISPLAY/ROTATE
30	GO-TO/TIMED PAGE
31	
32	
33	TIMER
34	CANCEL/RESET
35	5
36	0/AUX
37	VPS/CH/REVEAL
38	INTRO/PAGE +
39	A MONITOR/LARGE/NORMAL
40	
41	MENY/TEXT
42	
43	
44	
45	CANCEL/RESET
46	
47	
48	
49	STOP/HOLD
50	EJECT
51	FF/BLUE
52	REW/RED
53	REC
54	PLAY/OK/STORE
55	PAUSE/MIX
56	
57	V SEARCH>/YELLOW
58	V SEARCH</GREEN
59	
60	
61	
62	
63	SKIP/BLANK SEARCH
64	
65	MONITOR TV/VIDEO
66	TV OPERATE
67	TV CH ∨
68	TV CH ∧
69	TV VOL +
70	TV VOL −
71	OPERATE

3.33 RF CONVERTER SCHEMATIC DIAGRAM

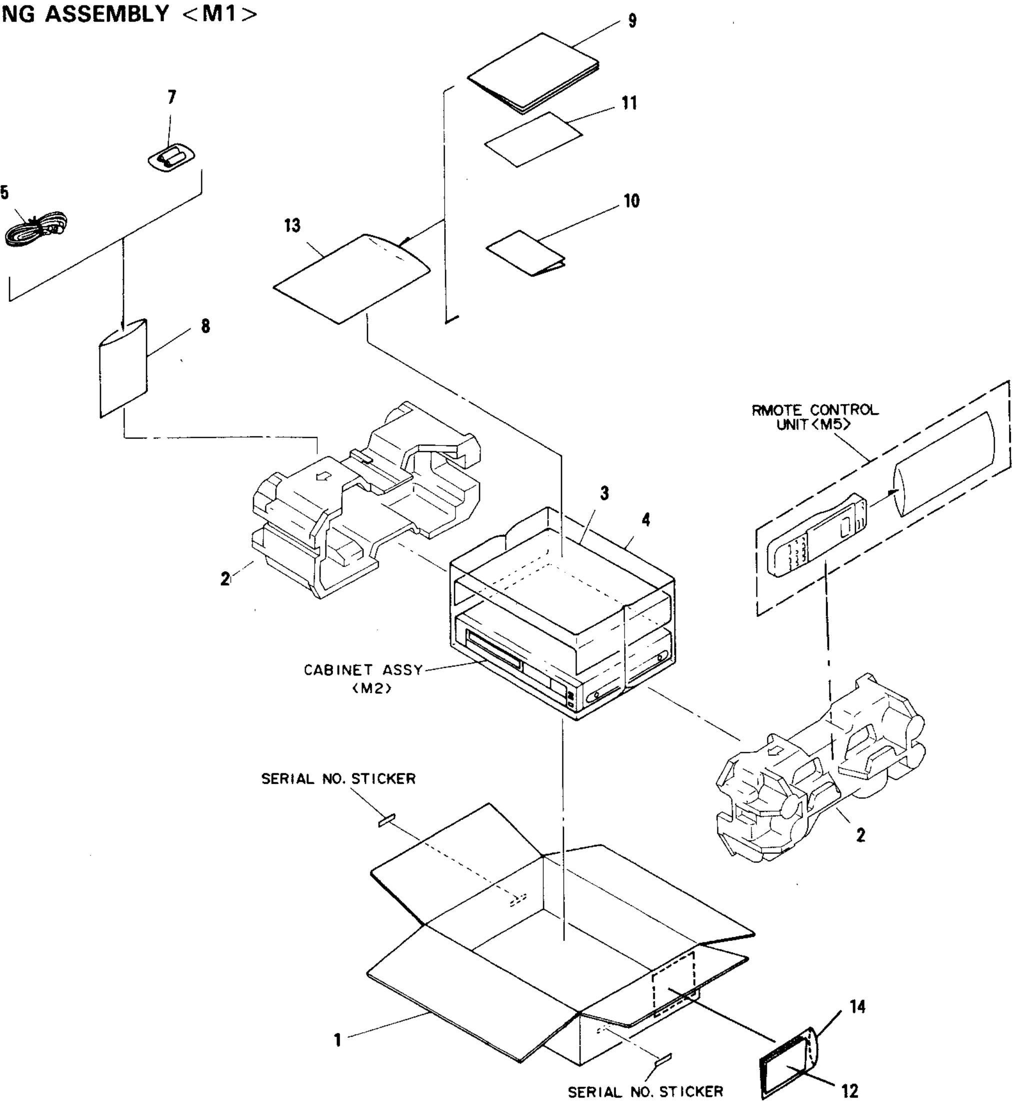
NOTES:
1. All parts shown in this schematic are critical for safety.
2. This schematic is only for reference.
Avoid replacing individual parts.
Replace the entire unit only.


RF CONVERTER
TV OUT
VTR OUT
ANT IN
BST +B
MOD +B
AUDIO IN
VIDEO IN
GND
IC1
Q51
Q52
Q53
Q1
D1
D2
SW1 (TSG SW)
VR1
X1

SECTION 4
EXPLODED VIEWS AND PARTS LIST

SAFETY PRECAUTION
Parts indentified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

4.1 PACKING ASSEMBLY <M1>

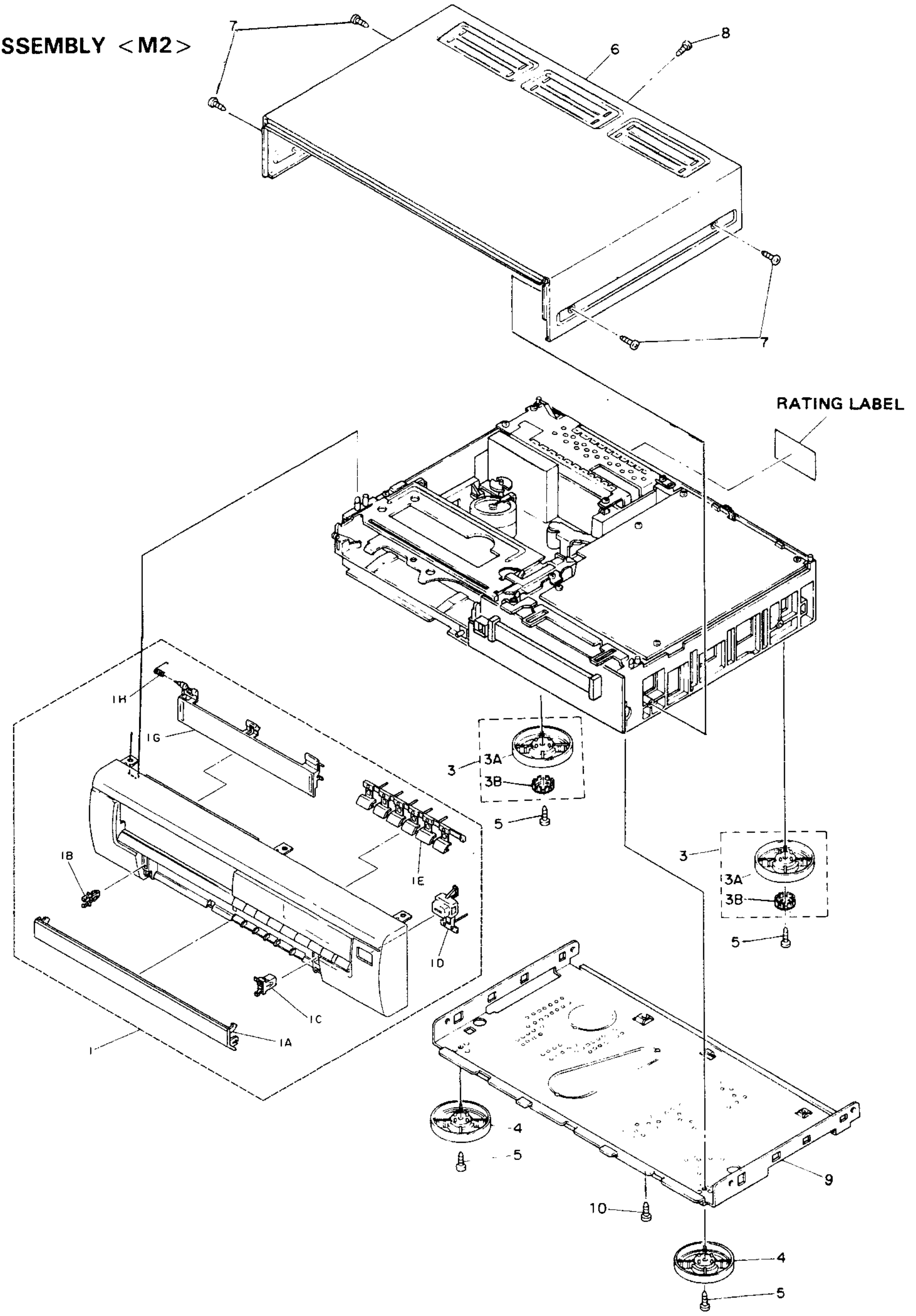

9
7
11
5
10
13
8
RMOTE CONTROL UNIT<M5>
3
4
2
CABINET ASSY <M2>
SERIAL NO. STICKER
2
14
1
SERIAL NO. STICKER
12

****

PACKING ASSEMBLY <M1>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	1	PQ33868-42	PACKING CASE,E
		PQ33868-44	PACKING CASE,EG
	2	PQ34447A	CUSHION ASSY
	3	PQ41026-12	PROTECT SHEET
	4	PQM30021-59-11	POLY BAG
	5	PU59168-3	RF CABLE
		or PU59167-3	RF CABLE
	7	UM-3DJ2P	BATTERY,X2
	8	QPGA020-02005	POLY BAG
⚠	9	PU30425-1286	INSTRUCTIONS,E/EG
⚠		PU30425-1287	INSTRUCTIONS,E
	10	TCN-3379	TAPE CATALOG
	11	PQ45146-11	SHEET(SPAIN),E
	12	BT-20114	WARRANTY CARD,EG
	13	QPGA025-03505	POLY BAG
	14	PQ33909	POLY BAG,EG

4.2 CABINET ASSEMBLY <M2>



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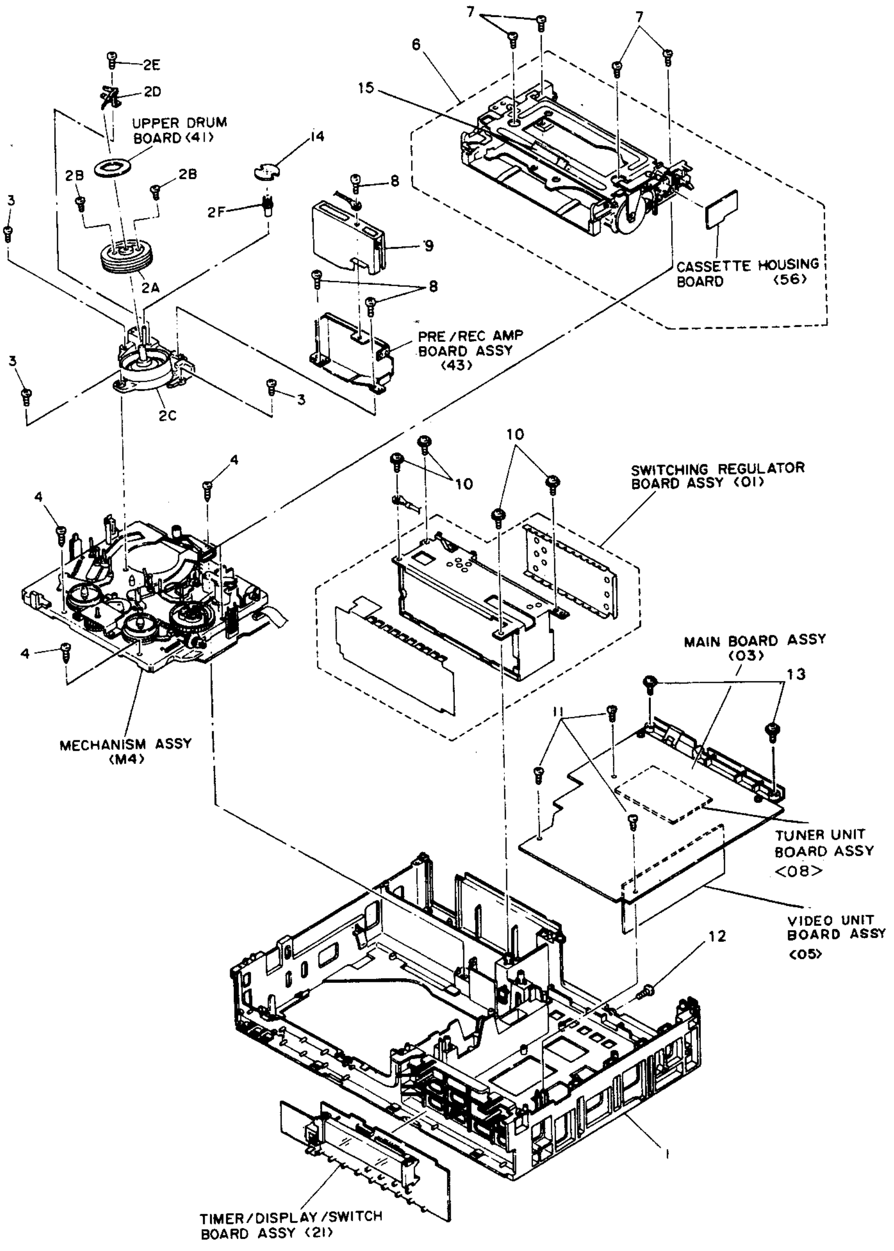
CABINET ASSEMBLY <M2>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	1	PQ11366B-4	FRONT PANEL ASSY,EG
		PQ11366A-4	FRONT PANEL ASSY,E
	1A	PQ34335B-2	DOOR ASSY
	1A	PQ34335A-2	DOOR ASSY
	1B	PU60109	CATCHER
	1C	PU60005	PUSH OPEN UNIT
	1D	PQ34298-1-2	BUTTON(POWER)
	1E	PQ34301	BUTTON(OPE)
	1G	PQ21376-1-2	CASSETTE HOUSING DOOR
	1H	PQ45704	TORSION SPRING
	3	PQ33012D	FOOT ASSY,X2
	3A	PQ33013-4	FOOT(1)
	3B	PQ33014	FOOT(2)
	4	PQ33013-4	FOOT(1),X2
	5	SDSF3010Z	SCREW,X4 FOR FOOT
⚠	6	PQ11144-1-3	TOP COVER
	7	PQ43827	SPECIAL SCREW,X4 FOR TOP COVER
	8	SDSF3010M	SCREW,FOR TOP COVER
⚠	9	PQ11145	BOTTOM COVER
	10	SDSF3010Z	SCREW

4.3 CHASSIS ASSEMBLY <M3>

BEWARE OF BOGUS PARTS

Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.



7
7
6
15
2E
2D
UPPER DRUM BOARD <41>
14
2B
2B
8
3
2F
9
2A
8
CASSETTE HOUSING BOARD <56>
PRE/REC AMP BOARD ASSY <43>
3
3
2C
10
4
10
SWITCHING REGULATOR BOARD ASSY <01>
4
MAIN BOARD ASSY <03>
4
13
11
MECHANISM ASSY <M4>
TUNER UNIT BOARD ASSY <08>
VIDEO UNIT BOARD ASSY <05>
12
1
TIMER/DISPLAY/SWITCH BOARD ASSY <21>

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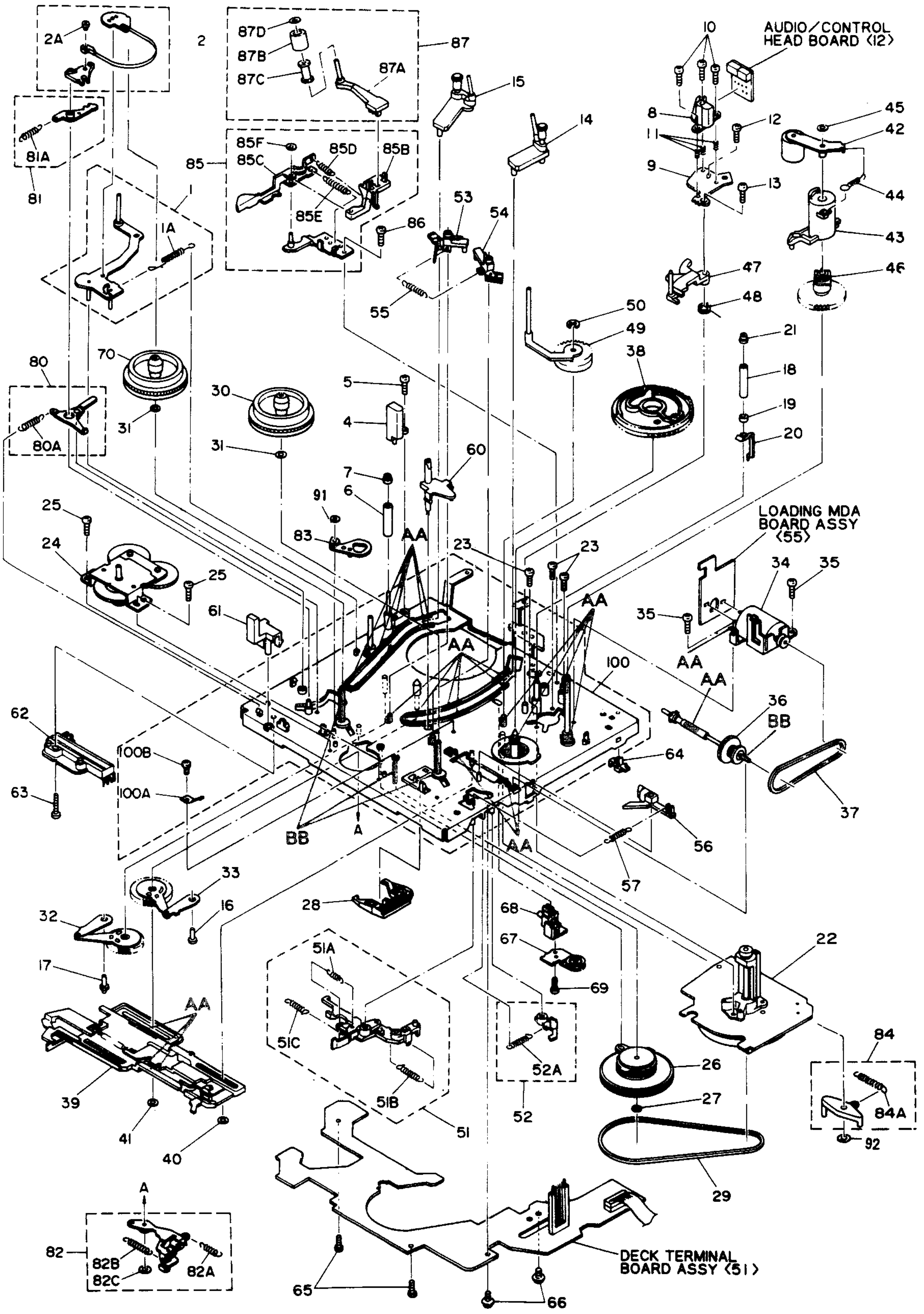
CHASSIS ASSEMBLY <M3>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
⚠	1	PQ11060	BOTTOM CHASSIS
	2A	PDM2008B-5	UPPER DRUM ASSEMBLY
	2B	PDM4165A	DRUM SCREW ASSEMBLY, X2
	2C	PDM2138G	LOWER DRUM MOTOR ASSEMBLY
	2D	PDM4229A-1	BRUSH ASSY
	2E	SPSG2606Z	SCREW,FOR BRUSH ASSEMBLY
	2F	PDM4226A	ROLLER ASSEMBLY
	3	SPST2610Z	SCREW,X3 FOR DRUM ASSEMBLY
		or SDST2610Z	SCREW,X3 FOR DRUM ASSEMBLY
	4	PQ43831	SPECIAL SCREW,X3 FOR MAIN DECK
	6	PUS29499D	CASSETTE HOUSING ASSY
	7	SDST2608Z	SCREW,X4 FOR CASSETTE HOUSING
		or SPST2608Z	SCREW,X4 FOR CASSETTE HOUSING
	8	SDSG2606Z	SCREW,X3 FOR PRE/REC BOARD
	9	PQ32217-2	SHIELD CASE(2),FOR P/R BOARD
	10	SDSF2610Z	SCREW,X4 FOR SW REG BOARD
	11	SDSF2610Z	SCREW,X3 FOR MAIN BOARD
	12	SDSF3010M	SCREW,FOR TERMINAL BOARD
	13	GPSF2610Z	SCREW,X2 FOR TERMINAL BOARD
	14	PQ45160	INERTIA PLATE
	15	PQM30029-127	SPACER

4.4 MECHANISM ASSEMBLY <M4>


2A
2
87D
87B
87C
87
87A
15
10
AUDIO/CONTROL HEAD BOARD <12>
81A
81
85F
85C
85D
85B
85
85E
86
14
8
12
45
42
11
9
13
44
43
1
1A
53
54
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55
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49
38
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18
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80
70
30
5
4
31
80A
31
60
7
6
91
25
24
83
AA
23
23
AA
LOADING MDA BOARD ASSY <55>
34
35
35
25
61
AA
100
AA
AA
62
36
BB
100B
64
100A
63
37
BB
A
AA
56
57
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28
68
32
22
51A
67
17
69
AA
51C
52A
84
26
27
84A
39
51B
51
52
92
41
40
29
A
82
82B
82C
82A
DECK TERMINAL BOARD ASSY <51>
65
66

Category	Part number	MARK
Grease	KANTO-G-31KAV	AA
Oil	COSMO-HV56	BB

NOTE: The section marked in AA and BB indicate lubrication and greasing areas.

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MECHANISM ASSEMBLY <M4>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION
	1	PQ43497E-11	TENSION ARM ASSY
	1A	PQ43500	TENSION SPRING
	2	PQ44734A-7	TENSION BAND ASSY
	2A	PQ45456	ADJUST PIN
	4	PU60616	FULL ERASE HEAD
	5	SDSF2614Z	SCREW
	6	PQ43505-1-1	ROLLER
	7	PQ43506	GUIDE POLE CAP
	8	PU61002	AUDIO/CONTROL HEAD
	9	PQ43509	HEAD BASE
	10	PQ43687A	SPECIAL SCREW,X3
	11	PQM30002-192	COMPRESSION SPRING,X3
	14	PU61103-2	POLE BASE(TAKE-UP) ASSY
	15	PU61151-2-3	POLE BASE(SUPPLY) ASSY
	16	PQ43524	STOPPER
	17	PQ43525	STOPPER 2
	18	PQ43526-1-3	TAPE GUIDE
	19	PQ43670-1-1	GUIDE FLANGE
	20	PQ43675	TAPE GUARD
	21	PQ43506	GUIDE POLE CAP
⚠	22	PU61003-1-2	CAPSTAN MOTOR
	23	SPSG2608Z	SCREW,X3
	24	PU61246	IDLER GEAR UNIT
	25	SPST2606Z	SCREW,X2
	26	PU61245-1-1	CLUTCH UNIT
	27	PQM30017-8	SLIT WASHER
	28	PQ43532B	CHANGE LEVER ASSY
	29	PU61006	REEL BELT
	30	PU60858-1-4	REEL DISK (TAKE-UP)
	31	PQM30018-54	SPACER,X2
	32	PQ43537A	LOADING ARM ASSY (SUPPLY)
	33	PQ43542B	LOADING ARM ASSY (TAKE-UP)
⚠	34	PQ43676B-5	MODE MOTOR ASSY
		or PQ43676C-7	MODE MOTOR ASSY
	35	SPST2606Z	SCREW,X2
	36	PQ43548A-3	WORM CLUTCH ASSY
	37	PQM30003-23	LOADING BELT
	38	PQ20822-2-7	CONTROL CAM
	39	PQ44581A-6	PLATE ASSY
	40	PQM30017-12	SLIT WASHER
	41	PQM30017-8	SLIT WASHER
	42	PQ43558A-5	PINCH ROLLER ARM ASSY
		or PQ43558B	PINCH ROLLER ARM ASSY
	43	PQ32415	PINCH ROLLER PRESS LEVER
	44	PQM30001-233	TENSION SPRING
	45	PQM30017-12	SLIT WASHER
	46	PQ32416-2	PINCH ROLLER CAM
	47	PQ43567A-13	GUIDE ARM ASSY
	48	PQ43569-1-3	TORSION SPRING
	49	PQ43570A-2	HALF LOADING GEAR ASSY
	50	PQM30017-12	SLIT WASHER
	51	PQ43575A-5	CANCEL LEVER ASSY
	51A	PQM30001-273	TENSION SPRING
	51B	PQM30001-237	TENSION SPRING
	51C	PQM30001-274	TENSION SPRING
	52	PQ43578A-2	HOOK ASSY
	52A	PQM30001-238	TENSION SPRING
	53	PQ43581C	MAIN BRAKE(SUPPLY) ASSY
	54	PQ43582B	MAIN BRAKE(TAKE-UP) ASSY
	55	PQM30001-251	TENSION SPRING
	56	PQ43583A	SUB BRAKE ASSY (TAKE-UP)
	57	PQM30001-346	TENSION SPRING
	60	PU60621-1-2	LED HOLDER,(INCL.D1)
	61	PU60624-1-4	REC SAFETY SWITCH
	62	PU61247-1-1	SLIDE ENCORDER,(S3)
	63	SDSF2614Z	SCREW
	64	PQ32516	PWB HOLDER
	65	SDST2616Z	SCREW,X2
	66	GPSF2608Z	SCREW,X2
	67	PQ43912A-7	PULLEY ARM ASSY
	68	PQ33249	PULLEY BASE
	69	PQ45121A	SCREW
	70	PU60859-1-4	REEL DISK (SUPPLY)
	80	PQ44739A-1	LOCK LEVER 1 ASSY
	80A	PQM30001-278-46	TENSION SPRING
	81	PQ44741A-3	LOCK LEVER 2 ASSY
	81A	PQM30001-279-52	TENSION SPRING
	82	PQ44743A-8	IDLER LEVER ASSY
	82A	PQM30001-344	TENSION SPRING
	82B	PQM30001-301	TENSION SPRING
	82C	PQM30017-5	SLIT WASHER
	83	PQ44746A-2	OFF LEVER ASSY
	84	PQ44585A-8	CAPSTAN BRAKE ASSEMBLY
	84A	PQM30001-282-52	SPRING
	85	PQ44843A-3	ARM BASE ASSY
	85B	PQ33511-1-2	CLEANER ARM
	85C	PQ44841-1-4	CANCEL LEVER
	85D	PQM30001-299	TENSION SPRING
	85E	PQM30001-300	TENSION SPRING
	85F	PQM30017-5	SLIT WASHER
	86	SPST2606Z	SCREW
	87	PQ44840A-3	CLEANER BASE ASSY
	87A	PQ44844A	CLEANER BASE SUB ASSY
	87B	PQ44837	CLEANER
	87C	PQ44838	CLEANER HOLDER
	87D	PQM30017-38	SLIT WASHER
	91	PQM30017-5	SLIT WASHER
	92	PQM30017-8	SLIT WASHER
	100	PQ20994B-5	MAIN DECK ASSY
		or PQ21232B-1	MAIN DECK ASSY
	100A	PQ43849	EARTH PLATE
	100B	SPST2604Z	SCREW

SECTION 5
ELECTRICAL PARTS LIST

SAFETY PRECAUTION
Parts indentified by the ⚠ symbol are critical for safety. Replace only with specified part numbers.

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SWITCH REGULATOR BOARD ASSEMBLY <01>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	PB20526X-01	SW.REGULATOR BOARD ASSY	
	IC1	LM358N	IC	
		or LM358P	IC	
		or XRA10358	IC	
		or BA10358	IC	
	Q1	2SC4517A-LF619	TRANSISTOR	
	Q2	2SC3616(MLK)	TRANSISTOR	
	Q5	2SB1425(EU)	TRANSISTOR	
	D1	10E6-F2	DIODE	
	D2	10E6-F2	DIODE	
	D3	10E6-F2	DIODE	
	D4	10E6-F2	DIODE	
	D5	AU01	FR DIODE	
		or 1SR153-400-T2	FR DIODE	
	D6	AU01	FR DIODE	
		or 1SR153-400-T2	FR DIODE	
	D7	MTZ27BT-77	ZENER DIODE	
	D8	AU01Z	FR DIODE	
		or ERA18-02-T2	FR DIODE	
		or 1SR153-200-T2	FR DIODE	
	D14	AU01Z	FR DIODE	
		or ERA18-02-T2	FR DIODE	
		or 1SR153-200-T2	FR DIODE	
	D15	AU01Z	FR DIODE	
		or ERA18-02-T2	FR DIODE	
		or 1SR153-200-T2	FR DIODE	
	D16	FML-12S	FR DIODE	
		or MA644	FR DIODE	
		or 5DL2CZ41A	FR DIODE	
		or FCF06A20	FR DIODE	
	D17	FMB-24	BARRIER DIODE	
		or F5KQ40B	BARRIER DIODE	
		or 5GWJ2CZ42	SB DIODE	
	D18	AU01Z	FR DIODE	
		or ERA18-02-T2	FR DIODE	
		or 1SR153-200-T2	FR DIODE	
	D19	MTZ33AT-77	ZENER DIODE	
	D21	AU01Z	FR DIODE	
		or ERA18-02-T2	FR DIODE	
		or 1SR153-200-T2	FR DIODE	
	D22	MTZV6.2A	ZENER DIODE	
	D23	RD15ES-T1B1	ZENER DIODE	
	R1	YU40344-2R2	WW RESISTOR	
		or PERE0505-2R2	WW RESISTOR	
	R2	QRD161J-334	RESISTOR	330KΩ,1/6
	R3	QRD161J-334	RESISTOR	330KΩ,1/6
	R4	QRD161J-563	RESISTOR	56KΩ,1/6
	R5	QRG029J-683G	OMF RESISTOR	68KΩ,2
	R6	QRG029J-241G	OMF RESISTOR	240Ω,2
	R7	QRD161J-122	RESISTOR	1.2KΩ,1/6
	R8	QRD161J-561	RESISTOR	560Ω,1/6
	R9	QRX014J-R39Z	MF RESISTOR	0.39Ω,1
	R10	QRG029J-273A	OMF RESISTOR	27KΩ,2
	R12	QRD161J-393	RESISTOR	39KΩ,1/6
⚠	R16	QRG02DJ-222X	OMF RESISTOR	2.2K
	R17	QRD161J-471	RESISTOR	470Ω,1/6
	R18	QRD161J-102	RESISTOR	1KΩ,1/6
	R19	QRV144F-1071A	CMF RESISTOR	1.07KΩ,1/4
	R20	QRV144F-1001A	CMF RESISTOR	1KΩ,1/4
⚠	R21	QRZ0077-470X	FUSIBLE RESISTOR	47Ω,1/4
	R22	QRD161J-102	RESISTOR	1KΩ,1/6
	R23	QRD161J-471	RESISTOR	470Ω,1/6
	R24	QRV144F-4423AY	CMF RESISTOR	442KΩ,1/4
	R25	QRV144F-1002A	CMF RESISTOR	1KΩ,1/4
	R26	QRV144F-1182A	CMF RESISTOR	1.18KΩ,1/4
⚠	R27	QRZ0052-130	FUSIBLE RESISTOR	13Ω,1/4
	R28	QRD161J-331	RESISTOR	330Ω,1/6
	R29	QRD161J-103	RESISTOR	10KΩ,1/6
⚠	C1	QFZ9037-333	M CAPACITOR	0.033μF,25
⚠	C2	QFZ9037-333	M CAPACITOR	0.033μF,25
⚠	C3	QFZ9037-333	M CAPACITOR	0.033μF,25
⚠	C6	QCZ9016-222M	CAPACITOR	0.0022μF,25
⚠		or QCZ9048-222	CAPACITOR	0.0022μF,25
⚠	C7	QCZ9016-222M	CAPACITOR	0.0022μF,25
⚠		or QCZ9048-222	CAPACITOR	0.0022μF,25
⚠	C8	QCZ9016-222M	CAPACITOR	0.0022μF,25
⚠	C9	QCZ9016-222M	CAPACITOR	0.0022μF,25
⚠	C10	QCZ9016-222M	CAPACITOR	0.0022μF,25

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
⚠ C11	QCZ9016-222M	CAPACITOR	0.0022μF,250V
C12	PECA0738-826	E CAPACITOR	82μF,400V
	or PECA0793-826	E CAPACITOR	82μF,400V
C13	QCZ0212-472	CAPACITOR	0.0047μF,1KV
C14	QCZ0213-101Z	CAPACITOR	100PF,1KV
C15	QFV11HJ-224	TF CAPACITOR	0.22μF,50V
	or PECA0780-224Z	M CAPACITOR	0.22μF,50V
C16	QFL41HJ-682	M CAPACITOR	0.0068μF,50V
	or QFLA1HJ-682Z	M CAPACITOR	0.0068μF,50V
C17	QETC1HM-475	E CAPACITOR	4.7μF,50V
C18	QETC1JM-336	E CAPACITOR	33μF,63V
C19	QEZ0125-277	E CAPACITOR	270μF,25V
	or QEZ0138-277	E CAPACITOR	270μF,25V
C20	QETC1EM-227	E CAPACITOR	220μF,25V
C21	QEGB1CM-687	E CAPACITOR	680μF,16V
C22	QETB1CM-108	E CAPACITOR	1000μF,16V
C23	QFL41HJ-102	M CAPACITOR	0.001μF,50V
	or QFLA1HJ-102Z	M CAPACITOR	0.001μF,50V
C24	QEGB1AM-687	E CAPACITOR	680μF,10V
C25	QETC1HM-476	E CAPACITOR	47μF,50V
C26	QETC1VM-336	E CAPACITOR	33μF,35V
C27	QFLA1HJ-103Z	M CAPACITOR	0.01μF,50V
C28	QEGC1AM-476	E CAPACITOR	47μF,10V
C29	QETC0JM-107	E CAPACITOR	100μF,6.3V
C30	QFLA1HJ-103Z	M CAPACITOR	0.01μF,50V
C31	QETB1AM-108	E CAPACITOR	1000μF,10V
C34	QETC1CM-107	E CAPACITOR	100μF,16V
C35	QFV11HJ-333	MMT CAP	0.033μF,50V
	or QFV41HJ-333	TF CAPACITOR	0.033μF,50V
L1	PELN0270-330KZ	COIL	33μH
	or PELN0628-330KZ	COIL	33μH
	or PELN0640-330KZ	COIL	33μH
L2	PELN0270-330KZ	COIL	33μH
	or PELN0628-330KZ	COIL	33μH
	or PELN0640-330KZ	COIL	33μH
L3	PELN0270-330KZ	COIL	33μH
	or PELN0628-330KZ	COIL	33μH
	or PELN0640-330KZ	COIL	33μH
⚠ PC1	PC111LS	PH COUPLER	
⚠	or PC111S	PHOTO COUPLER	
⚠ POC1	QMP3980-200	POWER CORD	
⚠ T1	PELN0480	SW TRANS	
⚠ BKT1	PQ33738	BRACKET(SW.REG.	
ETH1	PQ43872	EARTH PLATE	
⚠ HD1	QHS3771-108	STRAIN RELIEF	
⚠ HD2	PU57505	FUSE CLIP	
⚠ HS1	PQ45175	HEAT SINK	
⚠ LF1	PU59707	LINE FILTER	
⚠	or PELN0255	LINE FILTER	
⚠ LF2	PU61108	LINE FILTER	
⚠	or PU60347	LINE FILTER	
SCW1	SDST2605Z	SCREW,X2	
SCW2	YQM30032-22	SCREW	
SCW3	SDSG3008Z	SCREW	
SCW4	SDSG3006Z	SCREW	
SLD1	PQ21202-1-3	SHIELD CASE(1)	
SLD2	PQ33739	SHIELD CASE(2)	
SLD3	PQ33740	SHIELD CASE(3)	
SLD4	PQ33741	SHIELD CASE(4)	
⚠ TAB1	A74316	TAB,X2	
TP	PU56347	TEST POINT	
CN1	PU60910-104	WIRE TRAP	
CN2	PU60910-108	CONNECTOR	
⚠ CP1	ICP-N20	CP	
⚠ CP2	ICP-N20	CP	
⚠ F1	QMF51E2-1R0	FUSE	T1.0A
⚠	or QMF51E2-1R0J1	FUSE	T1.0A

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MAIN BOARD ASSEMBLY <03>

PWBA	PB10636B	MAIN BOARD ASSY,EG
	PB10636A-01	MAIN BOARD ASSY,E
⚠ RF1	PERF0091	RF CONVERTER
CL1	PU56729-2	WIRE CLAMP
CL2	PU59311-2	MINI CLAMP
ETH1	PQ43012-1-1	EARTH PLATE
HD1	PEME0888	WIRE HOLDER
HD2	PEME0831	HOLDER
HD3	PEME0841	HOLDER
SCW1	SDSF2608Z	SCREW
SCW1	SDST2605Z	SCREW
SPC1	PU60010	SPACER
⚠ TB1	PQ21199-2	TERMINAL BOARD,E
	PQ21199	TERMINAL BOARD,EG
WR1	PW30401-BB20T	COAXIAL CORD
	or PW30402-BB20M	COAXIAL CORD
	or PW30401-BB20S	COAXIAL CORD
TP31	or PEMC0727	TEST PIN,X14

– AUDIO SECTION –

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
⚠ IC1	BA7765AS	IC	
⚠	or XRA7765AS	IC	
Q1	2SC1740S(RS)	TRANSISTOR	
	or 2SC3199(G)	TRANSISTOR	
Q2	2SC1740S(RS)	TRANSISTOR	
	or 2SC3199(G)	TRANSISTOR	
Q3	DTA114ES	TRANSISTOR	
Q4	2SC1740S(RS)	TRANSISTOR	
	or 2SC3199(G)	TRANSISTOR	
Q5	DTA124ES	TRANSISTOR	
Q6	DTA144ES	TRANSISTOR	
D2	1SS133	DIODE	
	or MA165	DIODE	
D3	RD5.1ES-T1B2	ZENER DIODE	
	or UZ5.1BSB	ZENER DIODE	
	or HZS5.1EB2	ZENER DIODE	
R4	QRD161J-242	RESISTOR	2.4KΩ,1/6W
R5	QRD161J-103	RESISTOR	10KΩ,1/6W
R6	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R7	QRD161J-102	RESISTOR	1KΩ,1/6W
R8	QRD161J-471	RESISTOR	470Ω,1/6W
R9	QRD161J-471	RESISTOR	470Ω,1/6W
R10	QRD161J-100	RESISTOR	10Ω,1/6W
R12	QRD161J-153	RESISTOR	15KΩ,1/6W
R13	QRD161J-6R8	RESISTOR	6.8Ω,1/6W
R15	QRD161J-223	RESISTOR	22KΩ,1/6W
R16	QRD161J-181	RESISTOR	180Ω,1/6W
R17	QRD161J-274	RESISTOR	270KΩ,1/6W
R18	QRD161J-103	RESISTOR	10KΩ,1/6W
R21	QRD161J-183	RESISTOR	18KΩ,1/6W
R22	QRD161J-682	RESISTOR	6.8KΩ,1/6W
R23	QRD161J-752	RESISTOR	7.5KΩ,1/6W
R24	QRD161J-153	RESISTOR	15KΩ,1/6W
R25	QRD161J-153	RESISTOR	15KΩ,1/6W
R26	QRD161J-475	RESISTOR	4.7MΩ,1/6W
R27	QRD161J-475	RESISTOR	4.7MΩ,1/6W
R28	QRD161J-123	RESISTOR	12KΩ,1/6W
R29	QRD161J-333	RESISTOR	33KΩ,1/6W
R30	QRD161J-103	RESISTOR	10KΩ,1/6W
R32	QRD161J-333	RESISTOR	33KΩ,1/6W
R34	QRD161J-151	RESISTOR	150Ω,1/6W
R36	QRD161J-332	RESISTOR	3.3KΩ,1/6W
R37	QRD161J-273	RESISTOR	27KΩ,1/6W
R41	QRD161J-475	RESISTOR	4.7MΩ,1/6W
R45	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R46	QRD161J-472	RESISTOR	4.7KΩ,1/6W
⚠ R47	QRZ0052-4R7	FUSIBLE RESISTOR	4.7Ω,1/4W
R49	QRD161J-473	RESISTOR	47KΩ,1/6W
R50	QRD161J-103	RESISTOR	10KΩ,1/6W
R51	QRD161J-822	RESISTOR	8.2KΩ,1/6W
R52	QRD161J-333	RESISTOR	33KΩ,1/6W
R53	QRD161J-822	RESISTOR	8.2KΩ,1/6W
R59	QRD162J-0R0	RESISTOR	0.0Ω,1/6W
C3	QCC11EJ-272	CAPACITOR	0.0027μF,25V
C4	QCC11EJ-392	CAPACITOR	0.0039μF,25V
C5	QETC1EM-475	E CAPACITOR	4.7μF,25V
C6	QFLC1HJ-122Z	M CAPACITOR	0.0012μF,50V
C8	PU60550-105	E CAPACITOR	0.1μF
C9	QETC1CM-106Z	E CAPACITOR	10μF,16V
C10	QFV71HJ-103	TF CAPACITOR	0.01μF,50V
C11	QEK61HM-105	E CAPACITOR	1μF,50V
C12	QETC1CM-106	E CAPACITOR	10μF,16
C13	QCC11CJ-104	CAPACITOR	0.1μF,16
C14	QETC1CM-336	E CAPACITOR	33μF,16
C15	QETC1HM-104	E CAPACITOR	0.1μF,50
C16	QETC1HM-105	E CAPACITOR	1μF,50
C17	QFV71HJ-153	TF CAPACITOR	0.015μF,50
C19	QETC1CM-106	E CAPACITOR	10μF,16
C20	QCC11EJ-183	CAPACITOR	0.018μF,25
C21	QCC11EJ-272	CAPACITOR	0.0027μF,25
C24	QCC11EJ-222	CAPACITOR	0.0022μF,25
C25	QETC1CM-106	E CAPACITOR	10μF,16
C26	QCBB1HJ-331	CAPACITOR	330PF,50
C27	QFV71HJ-473	TF CAPACITOR	0.047μF,50
C28	QCXB1CM-122	CAPACITOR	0.0012μF,16
C29	QCBC1HJ-221	CAPACITOR	220PF,50
C31	QCXC1CM-122	CAPACITOR	1200PF,16
C33	QCBB1HJ-101	CAPACITOR	100PF,50
L1	PU58308-103J	COIL	10m
L2	PU59152-3R9J	COIL	3.9μ
L3	PU59152-3R9J	COIL	3.9μ
L4	PU59152-2R2J	COIL	2.2μ
L5	PU48530-471K	COIL	470μ
K1	PU60281-5	FERRATE BEADS	
⚠ T1	PELN0533	OSC TRANSFORMER	
CN1	PU59555-4	CONNECTOR	
CN2	PU58844-2	CONNECTOR	

– VIDEO SECTION –

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION
IC280	BA7106LS	IC
	or XRA7106LS	IC
Q201	2SC1740S(RS)	TRANSISTOR
	or 2SC3199(GB)-TJK	TRANSISTOR
	or 2SC3311A(RS)	TRANSISTOR
	or 2SC536SPA(FG)	TRANSISTOR

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	Q202	2SC1740S(RS)	TRANSISTOR	
		or 2SC3199(GB)-TJK	TRANSISTOR	
		or 2SC3311A(RS)	TRANSISTOR	
		or 2SC536SPA(FG)	TRANSISTOR	
	Q206	2SC1740S(RS)	TRANSISTOR	
		or 2SC3199(GB)-TJK	TRANSISTOR	
		or 2SC3311A(RS)	TRANSISTOR	
		or 2SC536SPA(FG)	TRANSISTOR	
	Q207	2SC1740S(RS)	TRANSISTOR	
		or 2SC3199(GB)-TJK	TRANSISTOR	
		or 2SC3311A(RS)	TRANSISTOR	
		or 2SC536SPA(FG)	TRANSISTOR	
	Q210	2SA933S(RS)	TRANSISTOR	
		or 2SA1267(YG)-TJK	TRANSISTOR	
	Q211	2SA933S(RS)	TRANSISTOR	
		or 2SA1267(YG)-TJK	TRANSISTOR	
	Q213	2SC1740S(RS)	TRANSISTOR	
		or 2SC3199(GB)-TJK	TRANSISTOR	
		or 2SC3311A(RS)	TRANSISTOR	
		or 2SC536SPA(FG)	TRANSISTOR	
	Q214	2SA933S(RS)	TRANSISTOR	
		or 2SA1267(YG)-TJK	TRANSISTOR	
	Q217	DTA114ES	TRANSISTOR	
	D213	1SS133	DIODE	
		or MA165	DIODE	
	D214	1SS133	DIODE	
		or MA165	DIODE	
	D280	1SS133	DIODE	
		or MA165	DIODE	
	D281	1SS133	DIODE	
		or MA165	DIODE	
	R201	QRD161J-102	RESISTOR	1KΩ,1/6W
	R202	QRD161J-223	RESISTOR	22KΩ,1/6W
	R203	QRD161J-223	RESISTOR	22KΩ,1/6W
	R206	QRD161J-101	RESISTOR	100Ω,1/6W
	R208	QRD161J-271	RESISTOR	270Ω,1/6W
	R209	QRD161J-152	RESISTOR	1.5KΩ,1/6W
	R210	QRD161J-621	RESISTOR	620Ω,1/6W
	R211	QRD161J-333	RESISTOR	33KΩ,1/6W
	R212	QRD161J-153	RESISTOR	15KΩ,1/6W
	R213	QRD161J-222	RESISTOR	2.2KΩ,1/6W
	R214	QRD161J-681	RESISTOR	680Ω,1/6W
	R215	QVZ3518-681AZ	V RESISTOR,SP REC COLOR LEVEL	680Ω
	R216	QRD161J-103	RESISTOR	10KΩ,1/6W
	R217	QRD161J-103	RESISTOR	10KΩ,1/6W
	R218	QRD161J-102	RESISTOR	1KΩ,1/6W
	R227	QRD121J-391S	RESISTOR	390Ω,1/2W
	R229	QRD161J-123	RESISTOR	12KΩ,1/6W
	R230	QRD161J-103	RESISTOR	10KΩ,1/6W
	R240	QRD161J-102	RESISTOR	1KΩ,1/6W
	R242	QRD161J-102	RESISTOR	1KΩ,1/6W
	R243	QRD161J-102	RESISTOR	1KΩ,1/6W
	R244	QRD161J-152	RESISTOR	1.5KΩ,1/6W

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	R245	QRD161J-102	RESISTOR	1KΩ,1/6W
	R246	QVZ3518-332AZ	V RESISTOR,REC FM	3.3KΩ
	R247	QRD161J-152	RESISTOR	1.5KΩ,1/6W
	R248	QRD161J-222	RESISTOR	2.2KΩ,1/6W
	R249	QRD161J-681	RESISTOR	680Ω,1/6W
	R250	QRD161J-750	RESISTOR	75Ω,1/6W
	R251	QRD161J-750	RESISTOR	75Ω,1/6W
	R257	QRD161J-562	RESISTOR	5.6KΩ,1/6W
	R258	QRD161J-562	RESISTOR	5.6KΩ,1/6W
	R259	QRD161J-561	RESISTOR	560Ω,1/6W
	R262	QRD161J-152	RESISTOR	1.5KΩ,1/6W
	R264	QRD161J-331	RESISTOR	330Ω,1/6W
	R265	QRD161J-102	RESISTOR	1KΩ,1/6W
	R267	QRD161J-562	RESISTOR	5.6KΩ,1/6W
	R280	QRD161J-914	RESISTOR	910KΩ,1/6W
	R281	QRD161J-681	RESISTOR	680Ω,1/6W
	R282	QRD161J-391	RESISTOR	390Ω,1/6W
	R283	QRD161J-104	RESISTOR	100KΩ,1/6W
	R284	QRD161J-273	RESISTOR	27KΩ,1/6W
	R285	QRD161J-103	RESISTOR	10KΩ,1/6W
	R286	QRD161J-333	RESISTOR	33KΩ,1/6W
	R287	QRD162J-0R0	RESISTOR	0.0Ω,1/6W
	C201	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C202	QCSB1HJ-390	CAPACITOR	39PF,50V
	C203	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C204	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C205	QETC0JM-476	E CAPACITOR	47μF,6.3V
	C206	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C207	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C208	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C209	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C212	QER61CM-476	E CAPACITOR	47μF,16V
	C213	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C214	QEK61AM-476	E CAPACITOR	47μF,10V
	C215	QETC0JM-108	E CAPACITOR	1000μF,6.3V
	C216	QETC0JM-476	E CAPACITOR	47μF,6.3V
	C217	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C222	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C226	QCSB1HK-4R7	CAPACITOR	4.7μF,50V
	C227	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C228	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C229	QCSB1HJ-560	CAPACITOR	56PF,50V
	C235	QFV11HJ-103	MM CAPACITOR	0.01μF,50V
	C236	QCC11CJ-273	CAPACITOR	0.027μF,16V
	C280	QETC1CM-106	E CAPACITOR	10μF,16V
	C281	QETC1HM-335	E CAPACITOR	3.3μF,50V
	C282	QCBB1HJ-471	CAPACITOR	470PF,50V
	C284	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C285	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C286	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C287	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C288	QFN31HJ-471	M CAPACITOR	470PF,50V

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C289	QCSB1HJ-270	CAPACITOR	27PF,50V
C290	QCXB1CN-472	CAPACITOR	0.0047 μ F,16V
C291	QCSB1HK-4R7	CAPACITOR	4.7 μ F,50V
C293	QETC0JM-477	E CAPACITOR	470 μ F,6.3V
C294	QCVB1CN-103	CAPACITOR	0.01 μ F,16V
C295	QCT25CH-101	CAPACITOR	100PF,50V
L201	PU48530-101K	COIL	100 μ H
L202	PU59152-180J	COIL	18 μ H
L203	PU48530-101K	COIL	100 μ H
L204	PU48530-101K	COIL	100 μ H
L206	PU59152-121J	COIL	120 μ H
L280	PU48530-101K	COIL	100 μ H
L282	PU60655-2	COIL	
EQ201	PU54838	EQUALIZER	
	or PU60714	EQUALIZER	
CN201	PU58844-5	CONNECTOR	
CN202	PU59555-3	CONNECTOR	

— SERVO SECTION —

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
IC401	HD49733ANT	IC	
IC501	BA7039	IC	
	or XRA7039	IC	
Q402	2SA1309(QRS)	TRANSISTOR	
	or 2SA933S(QRS)	TRANSISTOR	
	or 2SA1267(YG)-TJK	TRANSISTOR	
D401	1SS133	DIODE	
	or MA165	DIODE	
D402	1SS133	DIODE	
	or MA165	DIODE	
D403	1SS133	DIODE	
	or MA165	DIODE	
D404	1SS133	DIODE	
	or MA165	DIODE	
D407	1SS133	DIODE	
	or MA165	DIODE	
D408	1SS133	DIODE	
	or MA165	DIODE	
R401	QRD161J-223	RESISTOR	22KΩ,1/6W
R402	QRD161J-225	RESISTOR	2.2MΩ,1/6W
R403	QRD161J-473	RESISTOR	47KΩ,1/6W
R404	QRD161J-222	RESISTOR	2.2KΩ,1/6W
R405	QRD161J-123	RESISTOR	12KΩ,1/6W
R406	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R407	QRD161J-392	RESISTOR	3.9KΩ,1/6W
R408	QRD161J-105	RESISTOR	1.0MΩ,1/6W
R409	QRD161J-273	RESISTOR	27KΩ,1/6W
R411	QRD161J-105	RESISTOR	1.0MΩ,1/6W
R412	QRD161J-273	RESISTOR	27KΩ,1/6W
R413	QRD161J-273	RESISTOR	27KΩ,1/6W

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R414	QRD161J-335	RESISTOR	3.3MΩ,1/6W
R415	QRD161J-334	RESISTOR	330KΩ,1/6W
R416	QRD161J-822	RESISTOR	8.2KΩ,1/6W
R418	QRD161J-102	RESISTOR	1KΩ,1/6W
R419	QRD161J-473	RESISTOR	47KΩ,1/6W
R420	QVZ3518-684AZ	V RESISTOR,SP SW POINT	680KΩ
R422	QRD161J-104	RESISTOR	100KΩ,1/6W
R426	QRD161J-821	RESISTOR	820Ω,1/6W
R427	QRD161J-102	RESISTOR	1KΩ,1/6W
R428	QRD161J-105	RESISTOR	1.0MΩ,1/6W
R429	QRD161J-102	RESISTOR	1KΩ,1/6W
R430	QRD161J-102	RESISTOR	1KΩ,1/6W
R434	QRD161J-102	RESISTOR	1KΩ,1/6W
R435	QRD161J-102	RESISTOR	1KΩ,1/6W
R436	QRD161J-274	RESISTOR	270KΩ,1/6W
R437	QRD161J-274	RESISTOR	270KΩ,1/6W
R439	QRD161J-103	RESISTOR	10KΩ,1/6W
R440	QRD161J-474	RESISTOR	470KΩ,1/6W
R441	QRD161J-823	RESISTOR	82KΩ,1/6W
R442	QRD161J-275	RESISTOR	2.7MΩ,1/6W
R443	QRD161J-274	RESISTOR	270KΩ,1/6W
R450	QRD161J-564	RESISTOR	560KΩ,1/6W
R501	QRD161J-102	RESISTOR	1KΩ,1/6W
R502	QRD161J-332	RESISTOR	3.3KΩ,1/6W
R503	QRD161J-272	RESISTOR	2.7KΩ,1/6W
R508	QRD161J-124	RESISTOR	120KΩ,1/6W
C401	QCVB1CM-103	CAPACITOR	0.01 μ F,16
C402	QEK61AM-226	E CAPACITOR	22 μ F,10
C403	QFV11HJ-224	TF CAPACITOR	0.22 μ F,50
C404	QFLC1HJ-223Z	M CAPACITOR	0.022 μ F,50
	or QFN31HJ-223	M CAPACITOR	0.022 μ F,50
C405	QEK61EM-475	E CAPACITOR	4.7 μ F,25
C406	QEK61EM-475	E CAPACITOR	4.7 μ F,25
C407	QEK61CM-106	E CAPACITOR	10 μ F,16
C408	QEK61CM-106	E CAPACITOR	10 μ F,16
C409	QCC31CK-223	CAPACITOR	0.022 μ F,16
C410	QFV71HJ-184	TF CAPACITOR	0.18 μ F,50
	or QFV11HJ-184	MMT CAP	0.18 μ F,50
C411	QCBB1HJ-471	CAPACITOR	470PF,50
C412	QFLC1HJ-682Z	M CAPACITOR	0.0068 μ F,50
	or QFN31HJ-682	M CAPACITOR	0.0068 μ F,50
C414	QCBB1HJ-102	CAPACITOR	0.001 μ F,50
C415	QEK61AM-226	E CAPACITOR	22 μ F,10
C416	QEK61AM-226	E CAPACITOR	22 μ F,10
C417	QCBB1HJ-271	CAPACITOR	270PF,50
C418	QCBB1HJ-561	CAPACITOR	560PF,50
C419	QCBB1HJ-102	CAPACITOR	0.001 μ F,5
C420	QEK61HM-105	E CAPACITOR	1 μ F,5
C421	QCBB1HJ-102	CAPACITOR	0.001 μ F,5
C422	QFV71HJ-563	TF CAPACITOR	0.056 μ F,5
	or QFV11HJ-563	MMT CAP	0.056 μ F,5

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C423	QCBB1HJ-102	CAPACITOR	0.001 μF,50V
	C427	QCBB1HJ-181	CAPACITOR	180PF,50V
	C502	QCVB1CM-103	CAPACITOR	0.01 μF,16V
	C504	QFV71HJ-104	TF CAPACITOR	0.1 μF,50V
		or QFV11HJ-104	MM CAPACITOR	0.1 μF,50V
	C505	QCVB1CM-103	CAPACITOR	0.01 μF,16V
	C506	QFV71HJ-683	TF CAPACITOR	0.068 μF,50V
		or QFV11HJ-683	MMT CAP	0.068 μF,50V
	C507	QCVB1CM-103	CAPACITOR	0.01 μF,16V
	C508	QEK61AM-226	E CAPACITOR	22 μF,10V
	C509	QCVB1CM-103	CAPACITOR	0.01 μF,16V
	L501	PU59152-270J	COIL	27 μH
	CN401	PU59555-4	CONNECTOR	
	CN402	PU59555-3	CONNECTOR	
⚠	CP401	ICP-F15	CIRCUIT PROTECTOR	

— MECHACON SECTION —

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	IC601	M37524M3-163SP	IC	
		or JPC2004B-163	IC	
	IC602	S-6731A-021	IC	
		or CAT35C104P-007	IC	
		or CAT35C104P-021	IC	
	Q601	2SB1425(EU)	TRANSISTOR	
	Q602	DTC114ES	TRANSISTOR	
	Q606	DTC114YS	TRANSISTOR	
	D601	MA165	DIODE	
		or 1SS133	DIODE	
	D602	HZS8.2EB2TJ	ZENER DIODE	
		or MTZ8.2BT-77	ZENER DIODE	
		or UZ8.2BSB	ZENER DIODE	
	D603	MA165	DIODE	
		or 1SS133	DIODE	
	D604	MA165	DIODE	
		or 1SS133	DIODE	
	D605	MA165	DIODE	
		or 1SS133	DIODE	
	D606	11ES2	DIODE	
		or ERA15-02	DIODE	
		or S5688G	DIODE	
		or 1SR139-200	DIODE	
	D608	11ES2	DIODE	
		or ERA15-02	DIODE	
		or S5688G	DIODE	
		or 1SR139-200	DIODE	
	R601	QRD161J-681	RESISTOR	680Ω,1/6W
	R602	QRD161J-105	RESISTOR	1.0MΩ,1/6W
	R603	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R604	QRD161J-103	RESISTOR	10KΩ,1/6W
	R605	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R606	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R607	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R608	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R609	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R610	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R611	QRD161J-102	RESISTOR	1KΩ,1/6W
	R612	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R613	QRD161J-332	RESISTOR	3.3KΩ,1/6W
	R614	QRD161J-332	RESISTOR	3.3KΩ,1/6W
	R616	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R617	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R618	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R619	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R620	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R621	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R622	QRD161J-102	RESISTOR	1KΩ,1/6W
	R623	QRD161J-102	RESISTOR	1KΩ,1/6W
	R624	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R625	QRD161J-102	RESISTOR	1KΩ,1/6W
	R626	QRD161J-102	RESISTOR	1KΩ,1/6W
	R629	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R630	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R632	QRD161J-103	RESISTOR	10KΩ,1/6W
	R633	QRD161J-471	RESISTOR	470Ω,1/6W
	R634	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R636	QRD161J-821	RESISTOR	820Ω,1/6W
	R638	QRD161J-152	RESISTOR	1.5KΩ,1/6W
	R639	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R640	QRD161J-303	RESISTOR	30KΩ,1/6W
	R641	QRD161J-224	RESISTOR	220KΩ,1/6W
	R642	QRD161J-563	RESISTOR	56KΩ,1/6W
	R643	QRD161J-154	RESISTOR	150KΩ,1/6W
	R644	QRD161J-333	RESISTOR	33KΩ,1/6W
	R645	QRD161J-103	RESISTOR	10KΩ,1/6W
	R647	QRD161J-103	RESISTOR	10KΩ,1/6W
	R649	QRD161J-103	RESISTOR	10KΩ,1/6W
	R650	QRD161J-103	RESISTOR	10KΩ,1/6W
	R651	QRD161J-103	RESISTOR	10KΩ,1/6W
	R652	QRD161J-103	RESISTOR	10KΩ,1/6W
	R653	QRD161J-333	RESISTOR	33KΩ,1/6W
	R654	QRD161J-561	RESISTOR	560Ω,1/6W
	R660	QRD161J-473	RESISTOR	47KΩ,1/6W
	C601	QCFB1EZ-223	CAPACITOR	0.022 μF,25V
	C602	QEK61EM-335	E CAPACITOR	3.3 μF,25V
	C603	QER61HM-105	E CAPACITOR	1 μF,50V
	C604	QEK60JM-107	E CAPACITOR	100 μF,6.3V
	C605	QCBB1HJ-121	CAPACITOR	120PF,50V
	C606	QCC11EK-473	CAPACITOR	0.047 μF,25V
	C610	QCBC1HJ-102	CAPACITOR	1000PF,50V
	C611	QCBC1HJ-101	CAPACITOR	100PF,50V
	C612	QCBC1HJ-101	CAPACITOR	100PF,50V

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	L601	PU59152-2R2J	COIL	2.2μH
	L801	PU53618-100JD	COIL	10μH
⚠	CF601	PEVB0340	RESONATOR	
⚠	TH801	PESC1041	POSI THERMISTOR	
		or PESC1089	POSI THERMISTOR	
	CN601	PEMC0722-017	WIRE TRAP	
	CN601	PW30602-17726	PARALLEL ASS'Y	
		or PEMC0753-017	WIRE TRAP	
	CN602	PU59555-4	CONNECTOR	
	CN603	PU60910-10	WIRE TRAP	
	CN701	PEMC0823-009	CONNECTOR(Board to Board)	
	CN703	PEMC0823-009	CONNECTOR(Board to Board)	
⚠	CP602	ICP-F20	CIRCUIT PROTECTOR	

– REGULATOR SECTION –

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	IC801	UPC2405HF	IC	
		or LM2940CT-5.0	IC	
	Q801	2SB1425(EU)	TRANSISTOR	
⚠	Q802	2SC1740S	TRANSISTOR	
	Q803	2SB941P	TRANSISTOR	
		or 2SA1488	TRANSISTOR	
	Q804	2SC1740S(Q)	TRANSISTOR	
	Q805	2SC1740S	TRANSISTOR	
	Q806	2SA933S	TRANSISTOR	
		or 2SA1267(YG)-TJK	TRANSISTOR	
	D801	1SS133	DIODE	
		or MA165	DIODE	
	D802	UZ5.1BSC	ZENER DIODE	
		or MTZV5.1C	ZENER DIODE	
		or RD5.1ES-T1B3	ZENER DIODE	
	R801	QRD161J-103	RESISTOR	10KΩ,1/6W
	R802	QRD161J-222	RESISTOR	2.2KΩ,1/6W
	R803	QRD161J-102	RESISTOR	1KΩ,1/6W
	R804	QRD161J-102	RESISTOR	1KΩ,1/6W
	R805	QRD161J-102	RESISTOR	1KΩ,1/6W
	R806	QRD161J-103	RESISTOR	10KΩ,1/6W
	R807	QRD161J-221	RESISTOR	220Ω,1/6W
	R808	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R809	QRD161J-822	RESISTOR	8.2KΩ,1/6W
	R810	QRD161J-471	RESISTOR	470Ω,1/6W
	R811	QVZ3518-471A	V RESISTOR,SWD 5V	470Ω
		or QVZ3523-471A	V RESISTOR,SWD 5V	470Ω
	R812	QRD161J-103	RESISTOR	10KΩ,1/6W
	C803	QETC1CM-107	E CAPACITOR	100μF,16V
	C804	QETC0JM-107	E CAPACITOR	100μF,6.3V
	C805	QETC1AM-107	E CAPACITOR	100μF,10V
	C806	QFLA1HJ-103Z	M CAPACITOR	0.01μF,50V
	C807	QETC1CM-476	E CAPACITOR	47μF,16V
	C808	QETC0JM-107	E CAPACITOR	100μF,6.3V
	C809	QFN31HJ-102	M CAPACITOR	0.001μF,50V
	C811	QETA0JM-477	E CAPACITOR	470μF,6.3V
	CN801	PU61044-8	WIRE TRAP	
		or PEMC0848-008	WIRE TRAP	

– VPS SECTION <EG ONLY> –

REF No.	PART No.	PART NAME, DESCRIPTION	
IC101	SAA4700	IC	
R101	QRD161J-472	RESISTOR	4.7KΩ,1/6W
R102	QRD161J-822	RESISTOR	8.2KΩ,1/6W
R103	QRD161J-753	RESISTOR	75KΩ,1/6W
C101	QCBB1HJ-102	CAPACITOR	0.001μF,50
C102	QCXB1CN-472	CAPACITOR	0.0047μF,16
C103	QFJ41HJ-104	M CAPACITOR	0.1μF,50
C104	QCBB1HJ-471	CAPACITOR	470PF,50
C105	QFJ41HJ-104	M CAPACITOR	0.1μF,50
C106	QCXB1CN-472	CAPACITOR	0.0047μF,16
C107	QCF11HP-223	CAPACITOR	0.022μF,50

– TERMINAL SECTION –

REF No.	PART No.	PART NAME, DESCRIPTION	
Q702	2SB810H,J	TRANSISTOR	
D701	1SS133	DIODE	
	or MA165	DIODE	
D702	1SS133	DIODE	
	or MA165	DIODE	
D705	1SS133	DIODE	
	or MA165	DIODE	
R1	QRD161J-473	RESISTOR	47KΩ,1/6
R2	QRD161J-473	RESISTOR	47KΩ,1/6
R703	QRD161J-393	RESISTOR	39KΩ,1/6
R704	QRD161J-102	RESISTOR	1KΩ,1/6
C1	QCXB1CM-122	CAPACITOR	0.0012μF,16
C2	QCXB1CM-122	CAPACITOR	0.0012μF,16
L701	PU59152-100J	COIL	10μ
L703	PU59152-100J	COIL	10μ
J701	PEMC0766	RGB21PIN SOCKET	
J702	PU60612	EARPHONE JACK	
	or PU61012	MINI JACK	
J703	PEMC0824	DIN CONNECTOR	

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VIDEO UNIT BOARD ASSEMBLY <05>

PWBA	PB10554H	VIDEO UNIT BOARD ASSEMBLY

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
IC1	JCP0016-2	IC	
IC2	TL8827P	IC	
Q1	2SA1576(QRS)	TRANSISTOR	
Q5	2SA1576(QRS)	TRANSISTOR	
Q10	2SC4081(QRS)	TRANSISTOR	
Q11	DTC144WU	TRANSISTOR	
Q12	DTC144WU	TRANSISTOR	
Q13	DTC144WU	TRANSISTOR	
Q14	DTC144WU	TRANSISTOR	
Q18	2SC4081(QRS)	TRANSISTOR	
Q19	2SC4081(QRS)	TRANSISTOR	
Q20	2SC4081(QRS)	TRANSISTOR	
Q21	2SA1576(QRS)	TRANSISTOR	
Q23	DTC144WU	TRANSISTOR	
Q24	2SA1576(QRS)	TRANSISTOR	
Q25	2SC4081(QRS)	TRANSISTOR	
Q26	2SC4081(QRS)	TRANSISTOR	
Q28	2SC4081(QRS)	TRANSISTOR	
Q29	2SC4081(QRS)	TRANSISTOR	
Q30	2SC4081(QRS)	TRANSISTOR	
Q31	DTA124EU	TRANSISTOR	
Q32	DTC144WU	TRANSISTOR	
Q33	DTC114WU	TRANSISTOR	
D1	1SS292Y	DIODE	
D3	1SS133	DIODE	
	or MA165	DIODE	
D4	1SS133	DIODE	
	or MA165	DIODE	
D5	1SS133	DIODE	
	or MA165	DIODE	
D6	1SS133	DIODE	
	or MA165	DIODE	
D7	DAN202U	DIODE	
D11	1SS133	DIODE	
	or MA165	DIODE	
D12	1SS133	DIODE	
	or MA165	DIODE	
D14	1SS133	DIODE	
	or MA165	DIODE	
D15	1SS133	DIODE	
	or MA165	DIODE	
D17	DAN202U	DIODE	
D19	1SS133	DIODE	
	or MA165	DIODE	
D20	1SS133	DIODE	
	or MA165	DIODE	
D21	1SS133	DIODE	
	or MA165	DIODE	
D202	DAN202U	DIODE	
R1	NRSA63J-681N	RESISTOR	680Ω,1/16W
	or NRSA63J-681NC	RESISTOR	680Ω,1/16W

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R2	NRSA63J-475N	RESISTOR	4.7MΩ,1/16W
	or NRSA63J-475NC	RESISTOR	4.7MΩ,1/16W
R3	NRSA63J-475N	RESISTOR	4.7MΩ,1/16W
	or NRSA63J-475NC	RESISTOR	4.7MΩ,1/16W
R5	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	or NRSA63J-103NC	RESISTOR	10KΩ,1/16W
R6	NRSA63J-361N	RESISTOR	360Ω,1/16W
	or NRSA63J-361NC	RESISTOR	360Ω,1/16W
R10	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R11	NRSA63J-681N	RESISTOR	680Ω,1/16W
	or NRSA63J-681NC	RESISTOR	680Ω,1/16W
R12	ERS-L39J-102U	RESISTOR	1KΩ
R13	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R16	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
	or NRSA63J-392NC	RESISTOR	3.9KΩ,1/16W
R17	NVP1301-222N	V.RESISTOR, PB Y LEVEL	2.2KΩ
R18	NRSA63J-333N	RESISTOR	33KΩ,1/16W
	or NRSA63J-333NC	RESISTOR	33KΩ,1/16W
R19	NRSA63J-823N	RESISTOR	82KΩ,1/16W
	or NRSA63J-823NC	RESISTOR	82KΩ,1/16W
R21	NRSA63J-331N	RESISTOR	330Ω,1/16W
	or NRSA63J-331NC	RESISTOR	330Ω,1/16W
R22	NRSA63J-621N	RESISTOR	620Ω,1/16W
	or NRSA63J-621NC	RESISTOR	620Ω,1/16W
R23	NRSA63J-561N	RESISTOR	560Ω,1/16W
	or NRSA63J-561NC	RESISTOR	560Ω,1/16W
R24	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
	or NRSA63J-182NC	RESISTOR	1.8KΩ,1/16W
R25	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	or NRSA63J-222NC	RESISTOR	2.2KΩ,1/16W
R26	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R27	NRSA63J-183N	RESISTOR	18KΩ,1/16W
	or NRSA63J-183NC	RESISTOR	18KΩ,1/16W
R28	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
	or NRSA63J-822NC	RESISTOR	8.2KΩ,1/16W
R29	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
	or NRSA63J-562NC	RESISTOR	5.6KΩ,1/16W
R30	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
	or NRSA63J-562NC	RESISTOR	5.6KΩ,1/16W
R31	NRSA63J-183N	RESISTOR	18KΩ,1/16W
	or NRSA63J-183NC	RESISTOR	18KΩ,1/16W
R32	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
	or NRSA63J-562NC	RESISTOR	5.6KΩ,1/16W
R33	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
	or NRSA63J-562NC	RESISTOR	5.6KΩ,1/16W
R37	NRSA63J-162N	RESISTOR	1.6KΩ,1/16W
	or NRSA63J-162NC	RESISTOR	1.6KΩ,1/16W
R38	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
	or NRSA63J-332NC	RESISTOR	3.3KΩ,1/16W
R40	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R41	NVP1301-223N	V.RESISTOR, CARRIER	22KΩ
R42	NVP1301-103N	V.RESISTOR, DEVIATION	10KΩ
R43	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	or NRSA63J-222NC	RESISTOR	2.2KΩ,1/16W
R44	NRSA63J-432N	RESISTOR	4.3KΩ,1/16W
	or NRSA63J-432NC	RESISTOR	4.3KΩ,1/16W
R45	NRSA63J-122N	RESISTOR	1.2KΩ,1/16W
	or NRSA63J-122NC	RESISTOR	1.2KΩ,1/16W
R46	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R47	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	or NRSA63J-103NC	RESISTOR	10KΩ,1/16W
R48	NRSA63G-911N	RESISTOR	910Ω,1/16W
	or NRSA63G-911NC	RESISTOR	910Ω,1/16W
R49	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	or NRSA63J-103NC	RESISTOR	10KΩ,1/16W
R51	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R52	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R53	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R54	NRSA63J-242N	RESISTOR	2.4KΩ,1/16W
	or NRSA63J-242NC	RESISTOR	2.4KΩ,1/16W
R55	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
	or NRSA63J-392NC	RESISTOR	3.9KΩ,1/16W
R56	NVP1301-152N	V.RESISTOR, NC BALANCE	1.5KΩ
R57	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R58	NRSA63J-821N	RESISTOR	820Ω,1/16W
	or NRSA63J-821NC	RESISTOR	820Ω,1/16W
R59	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R60	NVP1301-103N	V.RESISTOR, EE Y LEVEL	10KΩ
R61	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R62	NRSA63J-334N	RESISTOR	330KΩ,1/16W
	or NRSA63J-334NC	RESISTOR	330KΩ,1/16W
R64	NVP1301-332N	V.RESISTOR, WHITE CLIP	3.3KΩ
R65	NRSA63J-103N	RESISTOR	10KΩ,1/16W
	or NRSA63J-103NC	RESISTOR	10KΩ,1/16W
R66	NRSA63J-434N	RESISTOR	430KΩ,1/16W
	or NRSA63J-434NC	RESISTOR	430KΩ,1/16W
R67	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R68	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R69	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R70	NRSA63J-471N	RESISTOR	470Ω,1/16W
	or NRSA63J-471NC	RESISTOR	470Ω,1/16W
R71	NRSA63J-122N	RESISTOR	1.2KΩ,1/16W
	or NRSA63J-122NC	RESISTOR	1.2KΩ,1/16W
R72	NRSA63J-333N	RESISTOR	33KΩ,1/16W
	or NRSA63J-333NC	RESISTOR	33KΩ,1/16W

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
R73	NRSA63J-333N	RESISTOR	33KΩ,1/16W
	or NRSA63J-333NC	RESISTOR	33KΩ,1/16W
R74	NRSA63J-681N	RESISTOR	680Ω,1/16W
	or NRSA63J-681NC	RESISTOR	680Ω,1/16W
R75	NRSA63J-561N	RESISTOR	560Ω,1/16W
	or NRSA63J-561NC	RESISTOR	560Ω,1/16W
R76	NRSA63J-102N	RESISTOR	1KΩ,1/16W
	or NRSA63J-102NC	RESISTOR	1KΩ,1/16W
R77	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
	or NRSA63J-562NC	RESISTOR	5.6KΩ,1/16W
R78	NRSA63J-681N	RESISTOR	680Ω,1/16W
	or NRSA63J-681NC	RESISTOR	680Ω,1/16W
R79	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
	or NRSA63J-222NC	RESISTOR	2.2KΩ,1/16W
R81	NRSA63J-475N	RESISTOR	4.7MΩ,1/16W
	or NRSA63J-475NC	RESISTOR	4.7MΩ,1/16W
R83	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
	or NRSA63J-272NC	RESISTOR	2.7KΩ,1/16W
R84	NRSA63J-105N	RESISTOR	1.0MΩ,1/16W
	or NRSA63J-105NC	RESISTOR	1.0MΩ,1/16W
R85	NRSA63J-155N	RESISTOR	1.5MΩ,1/16W
	or NRSA63J-155NC	RESISTOR	1.5MΩ,1/16W
R88	NRSA63J-101N	RESISTOR	100Ω,1/16W
R89	NRSA63J-561N	RESISTOR	560Ω,1/16W
R90	NRSA63J-562N	RESISTOR	5.6KΩ,1/16W
R208	NRSA63J-472N	RESISTOR	4.7KΩ,1/16W
	or NRSA63J-472NC	RESISTOR	4.7KΩ,1/16W
C1	NCS31HJ-221A	CAPACITOR	220PF,50
C2	NCS31HJ-220A	CAPACITOR	22PF,50
C4	NCS31HG-561A	CAPACITOR	560PF,50
C8	QCFA1EZ-473	CAPACITOR	0.047µF,25
C9	NCS31HJ-150A	CAPACITOR	15PF,50
C11	NCS31HJ-680A	CAPACITOR	68PF,50
C12	NCS31HJ-220A	CAPACITOR	22PF,50
C13	NCS31HG-121A	CAPACITOR	120PF,50
C14	NCF31HZ-103A	CAPACITOR	0.01µF,50
C17	NCF31HZ-103A	CAPACITOR	0.01µF,50
C18	NCS31HJ-820A	CAPACITOR	82PF,50
C19	QETC1HM-474	E CAPACITOR	0.47µF,50
C20	NCF31HZ-103A	CAPACITOR	0.01µF,50
C21	QETC1HM-474	E CAPACITOR	0.47µF,50
C22	QETC1EM-475	E CAPACITOR	4.7µF,25
C23	QETC1CM-106	E CAPACITOR	10µF,16
C24	QEN61AM-226	NP E CAPACITOR	22µF,10
	or QENC1AM-226	NP E CAPACITOR	22µF,10
C25	QETC1CM-106	E CAPACITOR	10µF,16
C26	PU57601-106MA	E CAPACITOR	10µF,10
C27	NCF31HZ-103A	CAPACITOR	0.01µF,50
C29	NCF31HZ-103A	CAPACITOR	0.01µF,50
C30	QETC1HM-225	E CAPACITOR	2.2µF,50
C31	QETC1HM-474	E CAPACITOR	0.47µF,50
C32	NCS31HG-201A	CAPACITOR	200PF,50

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C33	NCB31EK-223A	CAPACITOR	0.022μF,25V
C34	QETC1EM-475	E CAPACITOR	4.7μF,25V
C35	NCS31HG-150A	CAPACITOR	15PF,50V
C36	QCF81CZ-105	CAPACITOR	1μF,16V
C37	NCB31EK-223A	CAPACITOR	0.022μF,25V
C38	NCS31HJ-101A	CAPACITOR	100PF,50V
C40	NCS31HJ-390A	CAPACITOR	39PF,50V
C41	NCB31CK-333A	CAPACITOR	0.033μF,16V
C42	QETC0JM-476	E CAPACITOR	47μF,6.3V
C43	QETC1CM-106	E CAPACITOR	10μF,16V
C44	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C45	QETC1CM-106	E CAPACITOR	10μF,16V
C46	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C47	QETC1HM-105	E CAPACITOR	1μF,50V
C48	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C49	NCB31HK-472A	CAPACITOR	0.0047μF,50V
C50	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C51	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C52	QETC1HM-105	E CAPACITOR	1μF,50V
C53	QETC1CM-106	E CAPACITOR	10μF,16V
C54	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C56	QEN61EM-475	NP E CAPACITOR	4.7μF,25V
	or QENC1EM-475	NP E CAPACITOR	4.7μF,25V
C57	QETC1EM-335	E CAPACITOR	3.3μF,25V
C58	QETC1EM-475	E CAPACITOR	4.7μF,25V
C59	NCF31CZ-473A	CAPACITOR	0.047μF,16V
C60	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C61	QETC1HM-474	E CAPACITOR	0.47μF,50V
C62	NCB31CK-333A	CAPACITOR	0.033μF,16V
C63	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C64	QETC1HM-104	E CAPACITOR	0.1μF,50V
C65	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C66	QETC1HM-104	E CAPACITOR	0.1μF,50V
C67	NCF31CZ-473A	CAPACITOR	0.047μF,16V
C69	NCB31HK-103A	CAPACITOR	0.01μF,50V
C71	NCB31HK-182A	CAPACITOR	0.0018μF,50V
C72	QETC1EM-475	E CAPACITOR	4.7μF,25V
C73	QETC1HM-105	E CAPACITOR	1μF,50V
C74	QETC0JM-107	E CAPACITOR	100μF,6.3V
C75	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C76	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C77	QETC1HM-104	E CAPACITOR	0.1μF,50V
C78	QCVB1CN-103	CAPACITOR	0.01μF,16V
C79	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C80	NCS31HJ-240A	CAPACITOR	24PF,50V
C82	QETC1HM-225	E CAPACITOR	2.2μF,50V
C84	NCS31HJ-180A	CAPACITOR	18PF,50V
C91	NCS31HJ-620A	CAPACITOR	62PF,50V
C93	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C96	NCF31HZ-103A	CAPACITOR	0.01μF,50V
C97	NCB31CK-333A	CAPACITOR	0.033μF,16V
C98	NCB31HK-102A	CAPACITOR	0.001μF,50V
C99	NCS31HJ-180A	CAPACITOR	18PF,50V
C100	NCS31HG-361A	CAPACITOR	360PF,50V
C102	QCYA1EK-104	CAPACITOR	0.1μF,25V
L1	PU58201-121J	COIL	120μH
L3	PU59152-330J	COIL	33μH
L4	PU59152-330J	COIL	33μH
L6	PU59152-820J	COIL	82μH
L7	PU59152-221J	COIL	220μH
L8	PU48530-101K	COIL	100μH
L9	PU48530-101K	COIL	100μH
L10	PU59152-680J	COIL	68μH
L11	PU48530-101K	COIL	100μH
L12	PU48530-101K	COIL	100μH
L13	PU48530-561J	COIL	560μH
L15	PU59152-150J	COIL	15μH
L16	PU59152-820J	COIL	82μH
LPF1	PELN0477	LOW PASS FILTER	
	or PELN0623	LOW PASS FILTER	
LPF2	PELN0478	LOW PASS FILTER	
	or PELN0621	LOW PASS FILTER	
LPF3	PU60128-2	LOW PASS FILTER	
	or PELN0622	LOW PASS FILTER	
DL1	PU60490	COMB FILTER	
	or PU60340-3	2H DELAY LINE	
	or PU58971-4	2H DELAY LINE	
	or PU60222-2	2H DELAY LINE	
⚠ X1	PEVB0386	CRYSTAL RESONATOR	
⚠	or PU6A0653-2	CRYSTAL RESONATOR	
SLD1	PQ45174	SHIELD PLATE	
SLD2	PQ45173-1-1	SHIELD CASE	
CN1	PEMC0712-114	PIN HEADER	
CN2	PEMC0712-113	PIN HEADER	
CN3	PEMC0712-113	PIN HEADER	

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TUNER UNIT BOARD ASSEMBLY <08>

PWBA	PB10522S	TUNER UNIT BOARD ASSY
⚠ TNR1	PERF0066	UHF/VHF TUNER
IC1	LA7577V	IC
Q1	2SB810H,J	TRANSISTOR
Q2	2SD1450S,T	TRANSISTOR
Q3	2SD1450S,T	TRANSISTOR
Q4	2SD1819A(RS)	TRANSISTOR
Q5	2SK381(C)	FE TRANSISTOR
Q6	DTC114EU	TRANSISTOR
Q15	2SD1819A(RS)	TRANSISTOR

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
Q16	DTC144EU	TRANSISTOR	
Q17	2SD1819A(RS)	TRANSISTOR	
Q18	DTC144EU	TRANSISTOR	
Q19	2SD1819A(RS)	TRANSISTOR	
Q21	2SA1532(C)	TRANSISTOR	
D2	HZT33-02	ZENER DIODE	
D4	MTZ11B	ZENER DIODE	
R1	NRSA63J-0R0N	RESISTOR	0.0Ω,1/16W
R2	NRSA63J-0R0N	RESISTOR	0.0Ω,1/16W
R3	NRSA63J-0R0N	RESISTOR	0.0Ω,1/16W
R13	NRSA63J-683N	RESISTOR	68KΩ,1/16W
R19	QRSA08J-183YN	RESISTOR	18KΩ,1/10W
R23	QRD161J-151	RESISTOR	150Ω,1/6W
R32	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R34	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R41	NRSA63J-102N	RESISTOR	1KΩ,1/16W
R45	NRSA63J-750N	RESISTOR	75Ω,1/16W
R51	QRD161J-331	RESISTOR	330Ω,1/6W
R52	NRSA63J-101N	RESISTOR	100Ω,1/16W
R54	NRSA63J-824N	RESISTOR	820KΩ,1/16W
R59	NRSA63J-151N	RESISTOR	150Ω,1/16W
R61	NRSA63J-151N	RESISTOR	150Ω,1/16W
R63	NRSA63J-162N	RESISTOR	1.6KΩ,1/16W
R65	NRSA63J-910N	RESISTOR	91Ω,1/16W
R66	NRSA63J-911N	RESISTOR	910Ω,1/16W
R67	NRSA63J-331N	RESISTOR	330Ω,1/16W
R69	NRSA63J-471N	RESISTOR	470Ω,1/16W
R71	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R72	QVZ3518-103	V RESISTOR,RF AGC ADJ	10KΩ
R74	NRSA63J-182N	RESISTOR	1.8KΩ,1/16W
R76	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R78	NRSA63J-332N	RESISTOR	3.3KΩ,1/16W
R79	NRSA63J-162N	RESISTOR	1.6KΩ,1/16W
R80	NRSA63J-103N	RESISTOR	10KΩ,1/16W
R81	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R82	QRSA08J-471YN	RESISTOR	470Ω,1/10W
R83	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R84	NRSA63J-105N	RESISTOR	1.0MΩ,1/16W
R85	NRSA63J-623N	RESISTOR	62KΩ,1/16W
R86	NRSA63J-273N	RESISTOR	27KΩ,1/16W
R87	NRSA63J-681N	RESISTOR	680Ω,1/16W
R89	NRSA63J-471N	RESISTOR	470Ω,1/16W
R91	QRSA08J-184YN	RESISTOR	180KΩ,1/10W
R92	NRSA63J-223N	RESISTOR	22KΩ,1/16W
R93	NRSA63J-123N	RESISTOR	12KΩ,1/16W
R94	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R95	NRSA63J-272N	RESISTOR	2.7KΩ,1/16W
R96	NRSA63J-392N	RESISTOR	3.9KΩ,1/16W
R97	NRSA63J-822N	RESISTOR	8.2KΩ,1/16W
R105	NRSA63J-222N	RESISTOR	2.2KΩ,1/16W
R110	NRSA63J-153N	RESISTOR	15KΩ,1/16W
R113	QRSA08J-391YN	RESISTOR	390Ω,1/10W

#⚠ REF No.	PART No.	PART NAME, DESCRIPTION	
C2	NCS31HJ-471A	CAPACITOR	470PF,50V
C3	QCBB1HK-102	CAPACITOR	0.001μF,50V
C5	QETF1CM-476	E CAPACITOR	47μF,16V
C6	NCB31HK-102A	CAPACITOR	0.001μF,50V
C8	QETF1HM-106	E CAPACITOR	10μF,50V
C12	QETF1CM-106	E CAPACITOR	10μF,16V
C16	QETF1HM-475	E CAPACITOR	4.7μF,50V
C20	QETF1CM-106	E CAPACITOR	10μF,16V
C34	NCT06CH-3R0A	CAPACITOR	3.0PF,50V
C35	NCT06CH-4R0A	CAPACITOR	4.0PF,50V
C37	NRSA63J-0R0N	RESISTOR	0.0Ω,1/16W
C39	NCT06CH-3R0A	CAPACITOR	3.0PF,50
C41	NCF31HZ-103A	CAPACITOR	0.01μF,50
C42	QETF1CM-476	E CAPACITOR	47μF,16
C43	NCB31HK-222A	CAPACITOR	0.0022μF,50
C44	QETF1CM-476	E CAPACITOR	47μF,16
C47	QFN31HK-683	M CAPACITOR	0.068μF,50
C48	NCF31HZ-103A	CAPACITOR	0.01μF,50
C50	QETF1HM-474	E CAPACITOR	0.47μF,50
C51	NCS31HJ-750A	CAPACITOR	75PF,50
C53	NCS31HJ-120A	CAPACITOR	12PF,50
C55	NCB31HK-222A	CAPACITOR	0.0022μF,50
C56	QETC1CM-336	E CAPACITOR	33μF,16
C58	QCYA1HK-103	CAPACITOR	0.01μF,50
C59	NCT06CH-510A	CAPACITOR	51PF,50
C60	NCF31HZ-103A	CAPACITOR	0.01μF,50
C61	NCS31HJ-331A	CAPACITOR	330PF,50
C62	QETF1HM-224	E CAPACITOR	0.22μF,50
C63	NCF31HZ-103A	CAPACITOR	0.01μF,50
C66	NCB31HK-102A	CAPACITOR	0.001μF,50
C67	QFV81HJ-473	TF CAPACITOR	0.047μF,50
C68	QETF1HM-105	E CAPACITOR	1μF,50
C69	NCB31HK-222A	CAPACITOR	0.0022μF,50
C71	QETC1HM-104	E CAPACITOR	0.1μF,50
C91	NCT06CH-151A	CAPACITOR	150PF,50
C92	QCTA1CH-1R0	CAPACITOR	1.0PF,16
C93	NCT06CH-3R0A	CAPACITOR	3.0PF,50
C94	NCT06CH-180A	CAPACITOR	18PF,50
C100	NCF31HZ-103A	CAPACITOR	0.01μF,50
C103	NCS31HJ-221A	CAPACITOR	220PF,50
L2	PU60025-1R1	COIL	1.1μ
L3	PU60025-1R6	COIL	1.6μ
L5	PU60025-1R0	COIL	1.0μ
L6	PU59152-6R8J	COIL	6.8μ
L7	PU59152-6R8J	COIL	6.8μ
L8	PU59152-8R2J	COIL	8.2μ
L9	PU59152-120J	COIL	12μ
L10	PU59152-101J	COIL	100μ
L11	PU59152-220J	COIL	22μ
CF1	PU32990-2	CERAMIC FILTER	
CF2	PU60774-2	CERAMIC FILTER	
SAW1	PU35557-7	SAW FILTER	

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	T1	PELN0444	IF.TRANSFORMER	
	T3	PELN0442	COIL	
	T4	PELN0449	LC TRAP	
	SLD1	PQ33906-1-3	SHIELD PLATE	
	CN1	PEMC0825-009	CONNECTOR(Board to Board)	
	CN2	PEMC0825-009	CONNECTOR(Board to Board)	

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AUDIO CONTROL HEAD BOARD <12>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWB1	PB40068	AUDIO CONTROL HEAD BOARD	
	CN1	PU59555-107	CONNECTOR	

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TIMER/DISPLAY/SW BOARD ASSEMBLY <21>

# ⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	PB10650A-01	TIMER/DISPLAY/SW BOARD ASSY	
	IC1	UPD75216ACW-C79	IC	
	IC2	S-8053HNB-Z	IC	
	IC101	GP1U541X	IR DETECT UNIT	
		or GP1U801X	IR DETECT UNIT	
	Q1	2SC3199(G)	TRANSISTOR	
		or 2SC3311A(RS)	TRANSISTOR	
		or 2SC536SPA(FG)	TRANSISTOR	
		or 2SC1740S(RS)	TRANSISTOR	
	D1	RD9.1ES-T1B2	ZENER DIODE	
	D2	1SS133	DIODE	
	D3	1SS133	DIODE	
	D4	11ES2	DIODE	
	D5	11ES2	DIODE	
	D6	AU01	FR DIODE	
	D7	1SS133	DIODE	
	D8	RD5.6ES-T1B2	ZENER DIODE	
	D9	1SS132	DIODE	
	D10	1SS132	DIODE	
	D101	SLR-55VC3F	LE DIODE,POWER	
	D102	SLH-34MC3F	LE DIODE,AUTO TRACK	
	D111	1SS132	DIODE	
	D112	1SS132	DIODE	
	D113	1SS132	DIODE	
	D116	1SS132	DIODE	
	D117	1SS132	DIODE	
	D129	1SS132	DIODE	
	R1	QRD161J-103	RESISTOR	10KΩ,1/6W
	R2	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R3	QRD161J-273	RESISTOR	27KΩ,1/6W
	R4	QRD161J-682	RESISTOR	6.8KΩ,1/6W
	R5	QRD161J-333	RESISTOR	33KΩ,1/6W
	R6	QRD161J-333	RESISTOR	33KΩ,1/6W
	R7	QRD161J-102	RESISTOR	1KΩ,1/6W
	R8	QRD161J-103	RESISTOR	10KΩ,1/6W
	R9	QRD161J-103	RESISTOR	10KΩ,1/6W
	R10	QRD161J-103	RESISTOR	10KΩ,1/6W
	R11	QRD161J-103	RESISTOR	10KΩ,1/6W
	R12	QRD161J-333	RESISTOR	33KΩ,1/6W
	R13	QRD161J-271	RESISTOR	270Ω,1/6W
	R14	QRD161J-271	RESISTOR	270Ω,1/6W
	R15	QRD161J-103	RESISTOR	10KΩ,1/6W
	R16	QRD161J-103	RESISTOR	10KΩ,1/6W
	R17	QRD161J-472	RESISTOR	4.7KΩ,1/6W
	R18	QRD161J-333	RESISTOR	33KΩ,1/6W
	R19	QRD161J-333	RESISTOR	33KΩ,1/6W
	R20	QRD161J-333	RESISTOR	33KΩ,1/6W
	R21	QRD161J-333	RESISTOR	33KΩ,1/6W
	R22	QRD161J-103	RESISTOR	10KΩ,1/6W
	R25	QRD161J-103	RESISTOR	10KΩ,1/6W
	R26	QRD161J-103	RESISTOR	10KΩ,1/6W
	R30	QRD161J-224	RESISTOR	220KΩ,1/6W
	R31	QRD161J-151	RESISTOR	150Ω,1/6W
	R32	QRD161J-271	RESISTOR	270Ω,1/6W
	R33	QRD161J-271	RESISTOR	270Ω,1/6W
	R34	QRD161J-333	RESISTOR	33KΩ,1/6W
	R101	QRD161J-271	RESISTOR	270Ω,1/6W
	R102	QRD161J-271	RESISTOR	270Ω,1/6W
	RA1	QRB077J-104	RESISTOR ARRAY	
		or QRB079J-104	NETWORK RESISTOR	
	C3	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C4	QER61CM-106	E CAPACITOR	10μF,16V
	C5	PECA0810-105	E CAPACITOR	1.0μF,5.5V
		or QEA40HZ-105	E CAPACITOR (DOUBLE)	1.0μF,5.5V
	C6	QAT3123-200	TRIM CAPACITOR,TIMER CLOCK	20PF,
	C7	QCSB1HJ-120	CAPACITOR	12PF,50V
	C11	QER61CM-106	E CAPACITOR	10μF,16V
	C13	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C14	QER61HM-106	E CAPACITOR	10μF,50V
	C17	QCF11HP-473	CAPACITOR	0.047μF,50V
	C18	QER61CM-106	E CAPACITOR	10μF,16V
	C19	QER61CM-106	E CAPACITOR	10μF,16V
	C21	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C30	QCBB1HJ-102	CAPACITOR	0.001μF,50V
⚠	X1	PEVB0379	CRYSTAL RESONATOR	
⚠		or PU60226-4	CRYSTAL RESONATOR	
	S1	PU60392-2-2	TACT SWITCH,POWER	
		or PU60975-2Z	TACT SWITCH	
		or PESW0525-02Z	TACT SWITCH	
	S2	PU60392-1-2Z	TACT SWITCH,STOP	
		or PU60975-Z	TACT SWITCH	
		or PESW0525-Z	TACT SWITCH	

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION
S3	PU60392-2-2	TACT SWITCH,FF
	or PU60975-2Z	TACT SWITCH
	or PESW0525-02Z	TACT SWITCH
S4	PU60392-2-2	TACT SWITCH,REW
	or PU60975-2Z	TACT SWITCH
	or PESW0525-02Z	TACT SWITCH
S6	PU60392-2-2	TACT SWITCH,REC
	or PU60975-2Z	TACT SWITCH
	or PESW0525-02Z	TACT SWITCH
S7	PU60392-2-2	TACT SWITCH,PLAY
	or PU60975-2Z	TACT SWITCH
	or PESW0525-02Z	TACT SWITCH
S8	PU60392-2-2	TACT SWITCH,PAUSE
	or PESW0525-02Z	TACT SWITCH
	or PU60975-2Z	TACT SWITCH
S9	PU60392-1-2Z	TACT SWITCH,START+
	or PU60975-Z	TACT SWITCH
	or PESW0525-Z	TACT SWITCH
S10	PU60392-1-2Z	TACT SWITCH,START-
	or PU60975-Z	TACT SWITCH
	or PESW0525-Z	TACT SWITCH
S11	PU60392-1-2Z	TACT SWITCH,STOP+
	or PU60975-Z	TACT SWITCH
	or PESW0525-Z	TACT SWITCH
S12	PU60392-1-2Z	TACT SWITCH,STOP-
	or PU60975-Z	TACT SWITCH
	or PESW0525-Z	TACT SWITCH
S21	PU60392-1-2Z	TACT SWITCH,RESET
	or PU60975-Z	TACT SWITCH
	or PESW0525-Z	TACT SWITCH
S24	PU60392-1-2Z	TACT SWITCH,TIMER
	or PU60975-Z	TACT SWITCH
	or PESW0525-Z	TACT SWITCH
S25	PU60392-1-2Z	TACT SWITCH,SET+
	or PU60975-Z	TACT SWITCH
	or PESW0525-Z	TACT SWITCH
S26	PU60392-1-2Z	TACT SWITCH,SET-
	or PU60975-Z	TACT SWITCH
	or PESW0525-Z	TACT SWITCH
S28	PU60392-2-2	TACT SWITCH,DISP OFF
	or PU60975-2Z	TACT SWITCH
	or PESW0525-02Z	TACT SWITCH
S405	PESW0550	SLIDE SWITCH,REPEAT
FDP1	PEDP0074	FLUORESCENT DISPLAY PANEL
HD101	PQ33662	FDP HOLDER(R)
HD102	PQ33661	FDP HOLDER(L)
HD103	PQM30038-1-2	LED HOLDER
HD104	PQ40795-1-2	LED HOLDER
CN1	PU61044-4	CONNECTOR
	or PEMC0848-004	WIRE TRAP
CN2	PU61044-10	CONNECTOR
	or PEMC0848-010	WIRE TRAP

# ⚠ REF No.	PART No.	PART NAME, DESCRIPTION

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UPPER DRUM BOARD <41>

PWB1	PDM3017	BOARD (UPPER DRUM)

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PRE/REC AMP BOARD ASSEMBLY <43>

PWBA	PB20548D-01	PRE/REC BOARD ASSY	
IC1	LA7375	IC	
Q1	2SA1309(RS)	TRANSISTOR	
	or 2SA933S(RS)	TRANSISTOR	
	or 2SA1267(G)-TJK	TRANSISTOR	
Q2	2SC1740S(RS)	TRANSISTOR	
	or 2SC3199(G)	TRANSISTOR	
	or 2SC3311A(RS)	TRANSISTOR	
	or 2SC536SPA(G)	TRANSISTOR	
Q4	2SC1740S(RS)	TRANSISTOR	
	or 2SC3199(G)	TRANSISTOR	
	or 2SC3311A(RS)	TRANSISTOR	
	or 2SC536SPA(G)	TRANSISTOR	
D2	1SS133	DIODE	
	or MA165	DIODE	
R2	QRD161J-561	RESISTOR	560Ω,1/6
R3	QRD161J-222	RESISTOR	2.2KΩ,1/6
R4	QRD161J-222	RESISTOR	2.2KΩ,1/6
R5	QRD161J-391	RESISTOR	390Ω,1/6
R6	QRD161J-391	RESISTOR	390Ω,1/6
R7	QRD161J-821	RESISTOR	820Ω,1/6
R8	QRD161J-332	RESISTOR	3.3KΩ,1/6
R9	QRD161J-152	RESISTOR	1.5KΩ,1/6
R10	QRD161J-621	RESISTOR	620Ω,1/6
R11	QRD161J-132	RESISTOR	1.3KΩ,1/6
R12	QRD161J-821	RESISTOR	820Ω,1/6
R13	QRD161J-681	RESISTOR	680Ω,1/6
R16	QRD161J-122	RESISTOR	1.2KΩ,1/6
R17	QRD161J-153	RESISTOR	15KΩ,1/6
R18	QRD161J-223	RESISTOR	22KΩ,1/6
R19	QRD161J-333	RESISTOR	33KΩ,1/6
R20	QRD161J-102	RESISTOR	1KΩ,1/6
R21	QRD161J-333	RESISTOR	33KΩ,1/6
R22	QRD161J-622	RESISTOR	6.2KΩ,1/6
R23	QRD161J-102	RESISTOR	1KΩ,1/6
R24	QRD161J-123	RESISTOR	12KΩ,1/6
R25	QRD161J-682	RESISTOR	6.8KΩ,1/6
R28	QRD161J-821	RESISTOR	820Ω,1/6

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	C2	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C3	QCSB1HJ-330	CAPACITOR	33PF,50V
	C4	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C5	QCSB1HJ-560	CAPACITOR	56PF,50V
	C6	QCSB1HJ-100	CAPACITOR	10PF,50V
	C7	QCBB1HJ-471	CAPACITOR	470PF,50V
	C9	PU57601-106MA	E CAPACITOR	10μF
	C10	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C11	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C14	QFV11HJ-823	MMT CAP	0.082μF,50V
	C15	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C16	QFV11HJ-224	TF CAPACITOR	0.22μF,50V
	C17	QFV11HJ-224	TF CAPACITOR	0.22μF,50V
	C18	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C19	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C20	QCBB1HJ-102	CAPACITOR	0.001μF,50V
	C24	QCBB1HJ-820	CAPACITOR	82PF,50V
	C26	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C29	QCSB1HJ-100	CAPACITOR	10PF,50V
	C30	QER60JM-476	E CAPACITOR	47μF,6.3V
	C32	QCBB1HJ-271	CAPACITOR	270PF,50V
	L3	PU59152-470J	COIL	47μH
	L4	PU59152-470J	COIL	47μH
	L5	PU59152-330J	COIL	33μH
	L6	PU59152-121J	COIL	120μH
	L7	PU54223-101K	COIL	100μH
	TP3	PU60142-2	CONNECTOR	
	CN1	PU58844-105	CONNECTOR	
	CN2	PU59555-103	CONNECTOR	
	CN3	PU59973-4	CONNECTOR	

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DECK TERMINAL BOARD ASSEMBLY <51>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	PB10481E-01	DECK TERMINAL BOARD ASSY	
	Q1	PU60625	END SENSOR	
	R3	QRD161J-331	RESISTOR	330Ω,1/6W
	R4	QRD161J-331	RESISTOR	330Ω,1/6W
	R5	QRD161J-331	RESISTOR	330Ω,1/6W
	R8	NTH5D473KB	THERMISTOR	
		or ERT-D2ZHK473S	NEGA THERMISTOR	
		or NTH5D473KA	RESISTOR	
	C1	QCVB1CM-103	CAPACITOR	0.01μF,16V
	PS1	PS5705HR	PH INTERRUPTER	
	PS2	PS5705HR	PH INTERRUPTER	
	CN1	PEMC0722-017	WIRE TRAP	
		or PEMC0753-017	WIRE TRAP	
	CN2	PU60642	CONNECTOR(7PIN)	
	CN3	PU60640	CONNECTOR(4PIN)	

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LOADING MDA BOARD ASSEMBLY <55>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWBA	PB10481A2-01	LOADING MDA BOARD ASSY	
⚠	IC1	BA6418N	IC	
⚠		or XRA6418N	IC	
	C1	QETA1CM-336	E CAPACITOR	33μF,16V
	CN1	PU59555-104	CAP HOUSING	

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CASSETTE HOUSING BOARD <56>

#⚠	REF No.	PART No.	PART NAME, DESCRIPTION	
	PWB1	PB40061	CASSETTE HOUSING BOARD	
	Q2	PN268VI	PHOTO TRANSISTOR	
	D1	UZ5.1BSB	ZENER DIODE	
		or RD5.1ESB2	ZENER DIODE	
	R1	QRD162J-473	RESISTOR	47KΩ,1/6W
	R2	QRD182J-681	RESISTOR	680Ω,1/8W
	R3	QRD122J-102S	RESISTOR	1KΩ,1/2W
	C1	QCC11EJ-103	CAPACITOR	0.01μF,25V
	PHS3	PU60629	CASSETTE SENSOR	
	TH1	ERT-D2FHJ503S	THERMISTOR	
		or ERT-D2FHK503S	THERMISTOR	

SECTION 6
TECHNICAL INFORMATIONS

6.1 CPU pin functions

1. Mechacon CPU pin function (IC601)

Pin No.	Symbol	I/O format	Label	IN/OUT	Contents
1	Vcc	—	Vcc	—	For the SYSTEM CONTROL, DC 5V (AL 5V)
2	VREF	—	Vref		
3	DA	Analog	START SENS	I	LEADER TAPE DETECT (DET ON: L)
4	PWM	PWM	NC	—	NC
5	Port 6 4	N-ch OPEN DRAIN	FM DET	I	AUTO TRACKING DATA IN
6	3		THERM		THERMIC CORRECTION (CAPSTAN BRAKE TIMING CONTROL)
7	2		MODE SENS A		MECHANISM MODE DETECT
8	1		MODE SENS B		
9	0		MODE SENS C		
10	AN 7	Analog	REC SAFETY		DETECTS ERASE PROTECT TAB (TAB ABSENT: H)
11	6		END SENS		TRAILER TAPE DETECT (DET ON: L)
12	5		PICTURE	—	
13	4		CAP. V	O	CAPSTAN MOTOR DRIVE VOLTAGE SERVO
14	Port 4 3	N-ch OPEN DRAIN	DRUM. V		DRUM MOTOR DRIVE VOLTAGE SERVO
15	2		LCM 2		LOADING MOTOR CONTROL
16	1		SYNC DET		INPUT SIGNAL DETECT (NO SYNC: H)
17	0		DRUM FF	I	REC TIMING CONTROL, DRUM ROTATION DETECT (25 Hz)
18	Port 3 7	N-ch OPEN DRAIN	CTL PULSE	I	MODE DETECT (SP/LP), BLANK DETECT
19	6		CAP REV	O	CAPSTAN ROTATION CONTROL (REV: L)
20	5		V. PULSE	O	V PULSE CONTROL
21	4		HEAD SELECT	O	HEAD SELECT SIGNAL OUTPUT
22	3		NC	—	NC
23	2		REEL FG	I	REEL ROTATION DETECT/TAPE REMAIN
24	1		REEL FG (TU)		
25	0		LCM1		LOADING MOTOR CONTROL
26	$\overline{\text{INT-1}}$	—	CAP FG	I	MODE (SP/LP) DETECT/BACK SPACE COUNT
27	CN Vss		CN Vss		GND
28	$\overline{\text{RESET}}$		RESET		RESET AT CONNECT VCR TO AC
29	X IN		X IN	I	MAIN SYSTEM CLOCK
30	X OUT		X OUT	O	
31	ø		NC	—	NC
32	Vss		Vss	—	GND
33	Port 5 7	with Input Latch	R PAUSE	I	REMOTE PAUSE CONTROL (PAUSE ON: L)
34	6		INDEX	I/O	VISS DATA WRITE/DETECT
35	5		S. CLK	O	CLOCK
36	4		S. DATA	O	SERVO CONTROL DATA OUTPUT
37	3	High Impedance	RENT	O	RENTAL MODE: L
38	2		VPV		
39	1		VIDEO MUTE	—	NC
40	0		EDIT	O	EDIT MODE: L
41	Port 1 7	N-ch OPEN DRAIN	REC START	O	REC START: L
42			SP		SP MODE: L
43	5		AUX		INPUT SIGNAL CONTROL (AUX: L)
44	4		REC		REC: L
45	3		P MUTE		PICTURE MUTE CONTROL (MUTE ON: L)
46	2		EE		EE: L
47	1		POWER ON		POWER ON: L
48	0		VIDEO		VIDEO MODE: L
49	Port 0 7	N-ch OPEN DRAIN	A. MUTE	O	AUDIO MUTE CONTROL (MUTE ON: H)
50	6		CASS SENS	I	CASSETTE IN/OUT DETECT
51	5		M DATA	I/O	MEMORY IC CONTROL (DATA READ/WRITE)
52	4		TNR CTL	O	TNR MODE: H
53	3		V. UP	O	CAPSTAN ROTATION SPEED CONTROL (V. UP: H)
54	2		AUTO/MAN/SLOW	O	NC
55	1		NC	—	NC
56	0		M CE	O	MEMORY IC CHIP ENABLE
57	Port 2	C MOS		O	
58	6		UHF	—	
59	5		VH	O	TUNING DATA OUTPUT
60	4		PAUSE	O	CAPSTAN MOTOR SERVO (SERVO MODE: H)
61	3		SERVO		
62	2		T. CLK	I	CLOCK
63	1		T. DATA	I/O	M-CTL/TIMER CPU BUS DATA (16 BIT SERIAL)
64	0		VL	I	TUNING CHECK DATA INPUT

Table 6-1 Mechacon CPU pin function

2. IC1 pin function (Timer)

Pin No.	Symbol	Label	I/O	Contents
1	S3	Sd	O	SEGMENT DISPLAY DATA OUTPUT
2	S2	Sc		
3	S1	Sb		/KEY SCAN PULSE OUTPUT
4	S0	Sa		/KEY SCAN PULSE OUTPUT
5	P00/INT4	POWER DOWN	I	POWER DOWN DETECT (P DOWN: L)
6	P01/SCK	OS CLK	–	NC
7	P02/SD	OS DATA		
8	P03/SI	TEST	I	TEST POINT (TP1)
9	P10/INT0	REMOTE	I	16 bit REMOTE DATA INPUT (A/B CODE)
10	P11/INT1	NC	–	NC
11	P12/INT2	CNT PLS	O	COUNTER DATA INPUT
12	P13/T10	CNT PLS		
13	P20	KS0	I	KEY SCAN DATA INPUT
14	P21	KS1		
15	P22	KS2		
16	P23/BUZ	KS3		
17	P30	TIMER DATA	I/O	TM (TIMER/M-CTL CPU) BUS : 16 bit SERIAL DATA
18	P31	TIMER CLK	I	: CLOCK
19	P32	SDA TA	I/O	VIDEO PROGRAMMING SYSTEM : I^2 C BUS DATA
20	P33	SCL K	O	: CLOCK
21	P60	OS CE	O	ON SCREEN IC CONTROL
22	P61	OS RESET	O	
23	P62	NC	–	NC
24	P63	NC		
25	P40	NC		
26	P41	NC		
27	R42	NC		
28	P43	NC		
29	PP0	NC		
30	X1	X1	I	MAIN SYSTEM CLOCK
31	X2	X2	O	
32	Vss	Vss	–	GND
33	XT1	XT1	I	
34	XT2	POWER	O	LED CONTROL (LED ON: L)
35	P50	NC	–	NC
36	P51	AUTO TRACK	O	LED CONTROL (LED ON: L)
37	P52	NC	–	NC
38	P53	PROGRAM	O	BLUE BACK MODE: H
39	RESET	RESET	I	RESET AT CONNECT VCR TO AC
40	T0	10G	O	COLUMN DISPLAY DATA OUTPUT
41	T1	9G		
42	T2	8G		
43	T3	7G		
44	T4	6G		
45	T5	5G		
46	T6	4G		
47	T7	3G		
48	T8	2G		
49	T9	1G		
50	T10/S15/PH3	Sp	O	SEGMENT DISPLAY DATA OUTPUT /KEY SCAN PULSE OUTPUT
51	T11/S14/PH2	So		
52	T12/S13/PH1	Sn		
53	T13/S12/PH0	Sm		
54	T14/S11	Sl		
55	T15/S10	Sk		
56	VLOAD	VLOAD	I	FDP DRIVE
57	VPRE	VPRE		
58	S9	Sj	O	SEGMENT DISPLAY DATA OUTPUT
59	S8	Si		
60	S7	Sh		/KEY SCAN PULSE OUTPUT
61	S6	Sg		/KEY SCAN PULSE OUTPUT
62	S6	Sf		/KEY SCAN PULSE OUTPUT
63	S4	Se		/KEY SCAN PULSE OUTPUT
64	VDD	VDD	–	5 V For the SYSTEM CONTROL

Table 6-2 IC1 pin function